

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 13.06.95
Test oil : ISO 4113
Combination No. : 0 400 866 184
Injection pump
Pump designation : PES6A100D320/3RS2691
EP type number : 9 410 230 025

Governor
Governor design. : RSV425...900A4C2213
: -4R
Governor no. : 0 420 233 325

Cust. part No. : 3921160

Customer-spec. information
Customer : CDC
Motor : 6 CT 8.3
Power KW : 154.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2
Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0
Overflow valve : 1 417 413 047
Inlet press. bar : 1.5
Tolerance bar : ± 0.1
Test nozzle holde
assembly : 1 688 901 101
Opening pressure
bar : 208.5
Tolerance bar : ± 1.5
Test Lines : 1 680 750 014

A01

Outside diameter : 6.0
x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 17.0
Tolerance bar : ± 1.0
Prestroke mm : 2.85
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10
Rack travel in mm : 10.50
Tolerance mm : ± 1.50
Firing order : 1- 5- 3- 6- 2-
: 4
Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75
Start of delivery blocking
°NW after s.o.d. : 10.00
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75
Barrel no. : 1

BASIC SETTING

Rated speed rpm : 830
Rack travel in mm : 13.45

Tolerance mm : +- 0.05

Del. quantity
cm3/1000 strokes : 139.5

cm3/1000 strokes : +- 1.0

Check tolerance
cm3/1000S. : +- 3.0

Speed
cm3/1000 strokes : 4.0

Check tolerance
cm3/1000S. : 6.5

Rack travel in mm : 5.60
Tolerance mm : +- 0.10

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE POSITION

Rated speed rpm : 800

Rack travel in mm : 0.50
Tolerance mm : +- 0.20

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 830
Aneroid pressure
hPa : -

Del. quantity
cm3/1000 strokes : 139.5
cm3/1000 strokes : +- 1.0
Check tolerance
cm3/1000S. : +- 3.0
Speed
cm3/1000 strokes : 4.0
Check tolerance
cm3/1000S. : 6.5

CONTROL LEVER

control lever
position degree : 102.0
tolerance degree : +- 4.0

RATED SPEED

rack travel mm : 12.40

Rated speed rpm : 930
Tolerance 1/min : +- 5

rack travel mm : 4.00
Rated speed rpm : 975
Tolerance 1/min : +- 5

rack travel mm : 0.85
Tolerance mm : +- 0.55
Rated speed rpm : 1030

rack travel mm : 4.00
Rated speed rpm : 975

LOW IDLE

control lever
position degree : 76.0
tolerance degree : +- 4.0

Setting point w/out bumper spring

Rated speed rpm : 425
rack travel mm : 4.70

Testing:

Rated speed rpm : 425
rack travel mm : 5.60
Tolerance mm : +- 0.10

Rated speed rpm : 100
CRT mm min. : > 19.00

TORQUE CONTROL

Rated speed rpm : 830
rack travel mm : 13.45
Tolerance mm : +- 0.05

BREAKAWAY

Rack travel in mm : 12.40
Rated speed rpm : 930
Tolerance 1/min : +- 5

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.00
Tolerance mm : \pm 1.00
Del. quantity
cm³/1000 strokes : 145.0
cm³/1000 strokes : \pm 10.0
Check tolerance
cm³/1000s. : \pm 15.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 11.11.96
Test oil : ISO 4113

Combination No. : 0 400 866 188

Injection pump
Pump designation : PES6A100D320/3RS2691
EP type number : 9 410 230 025

Governor
Governor design. : RSV425...750A4C2213
 : -5R
Governor no. : 0 420 233 326

Cust. part No. : 3921152

Customer-spec. information
Customer : CDC
Motor : 6CT- 8.3 L
Power KW : 135.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet
temp. °C : 40
Tolerance °C : +- 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 1.5
Tolerance bar : +- 0.1

Test nozzle holde
assembly : 1 688 901 017

Opening pressure
bar : 208.5
Tolerance bar : +- 1.5

Test lines : 1 680 750 014

A04

Outside diameter : 6.0
x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 17.0
Tolerance bar : +- 1.0

Prestroke mm : 2.85
Tolerance mm : +- 0.05
Check
tolerance mm : +- 0.10

Rack travel in mm : 10.50
Tolerance mm : +- 1.50

Firing order : 1- 5- 3- 6- 2-
 : 4

Phasing : 0-60-120-180-240
 : -300
Tolerance : +- 0.50
Check
tolerance *NW : +- 0.75

Start of delivery blocking

*NW after s.o.d. : 10.00
Tolerance : +- 0.50
Check
tolerance *NW : +- 0.75

Barrel no. : 1

BASIC SETTING

Del. quantity
cm3/1000 strokes : 143.5

cm3/1000 strokes : +- 1.0

Check tolerance
cm³/1000S. : + 3.0

Spreed
cm³/1000 strokes : 4.0

Check tolerance
cm³/1000S. : 6.5

Rack travel in mm : 6.10
Tolerance mm : + 0.10

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE POSITION

Rated speed rpm : 800

Rack travel in mm : 0.50
Tolerance mm : + 0.20

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 750
Aneroid pressure
hPa : -
Del. quantity
cm³/1000 strokes : 143.5
cm³/1000 strokes : + 1.0
Check tolerance
cm³/1000S. : + 3.0
Spreed
cm³/1000 strokes : 4.0
Check tolerance
cm³/1000S. : 6.5

CONTROL LEVER

control lever
position degree : 90.0
tolerance degree : + 4.0

RATED SPEED

rack travel mm : 13.00
Rated speed rpm : 800
Tolerance 1/min : + 5

rack travel mm : 4.00
Rated speed rpm : 840
Tolerance 1/min : + 5

A05

rack travel mm : 0.85
Tolerance mm : + 0.55
Rated speed rpm : 900

rack travel mm : 4.00
Rated speed rpm : 845

LOW IDLE

control lever
position degree : 80.0
tolerance degree : + 4.0

Setting point w/out bumper spring

Rated speed rpm : 425
rack travel mm : 5.60

Testing:

Rated speed rpm : 425
rack travel mm : 6.10
Tolerance mm : + 0.10

Rated speed rpm : 100

CRT mm min. : > 19.00

BREAKAWAY

Rack travel in mm : 13.00
Rated speed rpm : 800
Tolerance 1/min : + 5

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.00
Tolerance mm : + 1.00
Del. quantity
cm³/1000 strokes : 145.0
cm³/1000 strokes : + 10.0
Check tolerance
cm³/1000S. : + 15.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 20.03.96
Test oil : ISO 4113

Combination No. : 0 400 866 190

Injection pump
Pump designation : PES6A100D320/3RS2691
EP type number : 9 410 230 025

Governor
Governor design. : RSV400...1250A0C2216
: -5R
Governor no. : 0 420 233 327

Cust. part No. : 3921144

Customer-spec. information
Customer : CDC
Motor : 6 CT 8.3 ltr
Power KW : 160.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 1.5
Tolerance bar : ± 0.1

Test nozzle holde
assembly : 1 688 901 101

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

A07

Outside diameter : 6.0
x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 17.0
Tolerance bar : ± 1.0

Prestroke mm : 2.85
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery blocking

*NW after s.o.d. : 11.00
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1250

Rack travel in mm : 12.05

Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 119.5

cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : ± 3.0

Spreed
cm³/1000 strokes : 4.0

Check tolerance
cm³/1000S. : 6.5

Rack travel in mm : 5.50
Tolerance mm : ± 0.10

(3) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE POSITION

Rated speed rpm : 800

Rack travel in mm : 0.50
Tolerance mm : ± 0.20

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1250
Aneroid pressure
hPa : -

Del. quantity
cm³/1000 strokes : 119.5
cm³/1000 strokes : ± 1.0
Check tolerance
cm³/1000S. : ± 3.0

Spreed
cm³/1000 strokes : 4.0
Check tolerance
cm³/1000S. : 6.5

CONTROL LEVER

control lever
position degree : 106.0
tolerance degree : ± 4.0

RATED SPEED

rack travel mm : 11.00

A08

Rated speed rpm : 1310
Tolerance 1/min : ± 5

rack travel mm : 4.00
Rated speed rpm : 1390
Tolerance 1/min : ± 5

rack travel mm : 0.85
Tolerance mm : ± 0.55
Rated speed rpm : 1450

rack travel mm : 4.00
Rated speed rpm : 1395

LOW IDLE

control lever
position degree : 80.0
tolerance degree : ± 4.0

Setting point w/out bumper spring

Rated speed rpm : 400
rack travel mm : 5.00

Testing:

Rated speed rpm : 400
rack travel mm : 5.50
Tolerance mm : ± 0.10

Rated speed rpm : 100

CRT mm min. : > 19.00

TORQUE CONTROL

Rated speed rpm : 1250
rack travel mm : 12.05
Tolerance mm : ± 0.05

Rated speed rpm : 750
rack travel mm : 12.40
Tolerance mm : ± 0.10

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : -

Rated speed rpm : 750
Del. quantity
cm³/1000 strokes : 127.0

cm³/1000 strokes : ± 2.0
Check tolerance
cm³/1000S. : ± 4.0

BREAKAWAY

Rack travel in mm : 11.00
Rated speed rpm : 1310
Tolerance 1/min : ± 5

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.00
Tolerance mm : ± 1.00
Del. quantity
cm³/1000 strokes : 145.0
cm³/1000 strokes : ± 10.0
Check tolerance
cm³/1000S. : ± 15.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 13.06.95
Test oil : ISO 4113

Combination No. : 0 400 866 204

Injection pump
Pump designation : PES6A100D320/3RS2691
EP type number : 9 410 230 025

Governor
Governor design. : RSV400...1100A0C2190
 : -76R
Governor no. : 0 420 233 315

Cust. part No. : 3921163

Customer-spec. information
Customer : CDC
Motor : 6 CT 8.3ltr
Power KW : 173.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 1.5
Tolerance bar : ± 0.1

Test nozzle holde
assembly : 1 688 901 101

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0
x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 17.0
Tolerance bar : ± 1.0

Prestroke mm : 2.85
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
 : 4

Phasing : 0-60-120-180-240
 : -300
Tolerance : ± 0.50
Check
tolerance *NW : ± 0.75

Start of delivery blocking

*NW after s.o.d. : 11.00
Tolerance : ± 0.50
Check
tolerance *NW : ± 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1100

Rack travel in mm : 10.75

Tolerance mm : +- 0.05

Del. quantity
cm3/1000 strokes : 99.0

cm3/1000 strokes : +- 1.0

Check tolerance
cm3/1000S. : +- 3.0

Spreed
cm3/1000 strokes : 4.0

Check tolerance
cm3/1000S. : 6.5

Rack travel in mm : 5.70
Tolerance mm : +- 0.10

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE POSITION

Rated speed rpm : 800

Rack travel in mm : 0.50
Tolerance mm : +- 0.20

governor spring
pre-tension
click setting x : 2.50

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1100
Aneroid pressure
hPa : -

Del. quantity
cm3/1000 strokes : 99.0
cm3/1000 strokes : +- 1.0
Check tolerance
cm3/1000S. : +- 3.0

Spreed
cm3/1000 strokes : 4.0
Check tolerance
cm3/1000S. : 6.5

CONTROL LEVER

control lever
position degree : 97.0
tolerance degree : +- 4.0

A11

RATED SPEED

rack travel mm : 9.70
Rated speed rpm : 1175
Tolerance 1/min : +- 5

rack travel mm : 4.00
Rated speed rpm : 1240
Tolerance 1/min : +- 5

rack travel mm : 0.85
Tolerance mm : +- 0.55
Rated speed rpm : 1300

rack travel mm : 4.00
Rated speed rpm : 1245

LOW IDLE

control lever
position degree : 79.0
tolerance degree : +- 4.0

Setting point w/out bumper spring

Rated speed rpm : 425
rack travel mm : 5.20

Testing:

Rated speed rpm : 425
rack travel mm : 5.70
Tolerance mm : +- 0.10

Rated speed rpm : 100

CRT mm min. : > 19.00

TORQUE CONTROL

Rated speed rpm : 1100
rack travel mm : 10.75
Tolerance mm : +- 0.05

BREAKAWAY

Rack travel in mm : 9.70
Rated speed rpm : 1175
Tolerance 1/min : +- 5

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.00
Tolerance mm : ± 1.00
Del. quantity
cm³/1000 strokes : 145.0
cm³/1000 strokes : ± 10.0
Check tolerance
cm³/1000s. : ± 15.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 20.03.96
Test oil : ISO 4113

Combination No. : 0 400 866 208

Injection pump
Pump designation : PES6A100D320/3RS2691
EP type number : 9 410 230 025

Governor
Governor design. : RSV400...1100AOC2190
 : -80R
Governor no. : 0 420 233 319

Cust. part No. : 3921140

Customer-spec. information
Customer : CDC
Motor : 6 CT 8.3
Power KW : 156.6

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 1.5
Tolerance bar : ± 0.1

Test nozzle holder
assembly : 1 688 901 101

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0
x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 17.0
Tolerance bar : ± 1.0

Prestroke mm : 2.85
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
 : 4

Phasing : 0-60-120-180-240
 : -300
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery blocking

*NW after s.o.d. : 10.00
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1100

Rack travel in mm : 12.35

Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 125.5

cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : ± 3.0

Spreed
cm³/1000 strokes : 4.0

Check tolerance
cm³/1000S. : 6.5

Rack travel in mm : 5.30
Tolerance mm : ± 0.10

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE POSITION

Rated speed rpm : 800

Rack travel in mm : 0.50
Tolerance mm : ± 0.20

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1100
Aneroid pressure
hPa : -

Del. quantity
cm³/1000 strokes : 125.5
cm³/1000 strokes : ± 1.0
Check tolerance
cm³/1000S. : ± 3.0

Spreed
cm³/1000 strokes : 4.0
Check tolerance
cm³/1000S. : 6.5

CONTROL LEVER

control lever
position degree : 94.0
tolerance degree : ± 4.0

RATED SPEED

rack travel mm : 11.30

A14

Rated speed rpm : 1170
Tolerance 1/min : ± 5

rack travel mm : 4.00
Rated speed rpm : 1220
Tolerance 1/min : ± 5

rack travel mm : 0.85
Tolerance mm : ± 0.55
Rated speed rpm : 1300

rack travel mm : 4.00
Rated speed rpm : 1230

LOW IDLE

control lever
position degree : 75.0
tolerance degree : ± 4.0

Setting point w/out bumper spring

Rated speed rpm : 425
rack travel mm : 4.80

Testing:

Rated speed rpm : 425
rack travel mm : 5.30
Tolerance mm : ± 0.10

Rated speed rpm : 100

CRT mm min. : > 19.00

TORQUE CONTROL

Rated speed rpm : 1100
rack travel mm : 12.35
Tolerance mm : ± 0.05

BREAKAWAY

Rack travel in mm : 11.30
Rated speed rpm : 1170
Tolerance 1/min : ± 5

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.00
Tolerance mm : \pm 1.00
Del. quantity
cm³/1000 strokes : 145.0
cm³/1000 strokes : \pm 10.0
Check tolerance
cm³/1000S. : \pm 15.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 05.11.95
Test oil : ISO 4113

Combination No. : 0 400 866 212

Injection pump
Pump designation : PES6A100D320/3RS2691
: -4
EP type number : 9 410 230 030

Governor
Governor design. : RSV450...1100A0C2190
: -82R
Governor no. : 0 420 233 321

Cust. part No. : 3931268

Customer-spec. information
Customer : CDC
Motor : 6CT830
Power KW : 117.1

TEST BENCH REQUIREMENTS

Inlet line : 4.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 1.5
Tolerance bar : ± 0.1

Test nozzle holder
assembly : 1 688 901 101

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0
x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 17.0
Tolerance bar : ± 1.0

Prestroke mm : 2.85
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery blocking

°NW after s.o.d. : 11.00
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1100

Rack travel in mm : 10.65

Tolerance mm : \pm 0.05

Del. quantity
cm³/1000 strokes : 96.5

cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000S. : \pm 3.0

Spreed
cm³/1000 strokes : 4.0

Check tolerance
cm³/1000S. : 6.5

Rated speed rpm : 450

Rack travel in mm : 5.60
Tolerance mm : \pm 0.10
Del. quantity
cm³/1000 strokes : 16.5
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.5
Spreed
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 8.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE POSITION

Rated speed rpm : 800

Rack travel in mm : 0.50
Tolerance mm : \pm 0.20

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1100
Aneroid pressure
hPa : -

Del. quantity
cm³/1000 strokes : 96.5
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 3.0

Spreed
cm³/1000 strokes : 4.0
Check tolerance
cm³/1000S. : 6.5

CONTROL LEVER

control lever
position degree : 104.0
tolerance degree : \pm 6.0

RATED SPEED

rack travel mm : 9.60
Rated speed rpm : 1160
Tolerance 1/min : \pm 5

rack travel mm : 4.00
Rated speed rpm : 1235
Tolerance 1/min : \pm 5

rack travel mm : 0.85
Tolerance mm : \pm 0.55
Rated speed rpm : 1325

rack travel mm : 4.00
Rated speed rpm : 1245

LOW IDLE

control lever
position degree : 84.0
tolerance degree : \pm 6.0

Setting point w/out bumper spring

Rated speed rpm : 450
rack travel mm : 5.10

Testing:

Rated speed rpm : 450
rack travel mm : 5.60
Tolerance mm : \pm 0.10

Rated speed rpm : 100

CRT mm min. : $>$ 19.00

TORQUE CONTROL

Rated speed rpm : 1100
rack travel mm : 10.65
Tolerance mm : \pm 0.05

Rated speed rpm : 750
rack travel mm : 11.10
Tolerance mm : \pm 0.10

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : -
Rated speed rpm : 750
Del. quantity
cm³/1000 strokes : 94.0
cm³/1000 strokes : ± 2.0
Check tolerance
cm³/1000S. : ± 4.0

BREAKAWAY

Rack travel in mm : 9.60
Rated speed rpm : 1160
Tolerance 1/min : ± 5

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.00
Tolerance mm : ± 1.00
Del. quantity
cm³/1000 strokes : 145.0
cm³/1000 strokes : ± 10.0
Check tolerance
cm³/1000S. : ± 15.0

LOW IDLE

Rated speed rpm : 450
Del. quantity
cm³/1000 strokes : 16.5
cm³/1000 strokes : ± 2.0
Check tolerance
cm³/1000S. : ± 4.5
Spreed
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 8.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 13.09.95
Test oil : ISO 4113
Combination No. : 0 400 876 394
Injection pump
Pump designation : PES6A100D410RS2754
EP type number : 0 410 806 002
Governor
Governor design. : RSV425...1100A0C2234
 : -2L
Governor no. : 0 420 232 569
Cust. part No. : RE51026

Customer-spec. information
Customer : DEERE
Motor : 6076TRW04
Power KW : 122.0

TEST BENCH REQUIREMENTS

Inlet line : 4.2
Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0
Overflow valve : 1 457 413 010
Inlet press. bar : 1.5
Test nozzle holder
assembly : 1 688 901 101
Opening pressure
bar : 208.5
Tolerance bar : ± 1.5
Test lines : 1 680 750 008
Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 17.0
Tolerance bar : ± 1.0
Prestroke mm : 3.00
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10
Rack travel in mm : 10.50
Tolerance mm : ± 1.50
Firing order : 1- 5- 3- 6- 2-
 : 4

Phasing : 0-60-120-180-240
 : -300
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery blocking

*NW after s.o.d. : 13.50
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Barrel no. : 1

Beginning of delivery difference

and maximum rack
travel : 10.50
Tolerance mm : ± 1.50
Difference °CS : 7.00

BASIC SETTING

Rated speed rpm : 1100

Rack travel in mm : 10.65
Tolerance mm : +- 0.05

Del. quantity
cm³/1000 strokes : 101.5

cm³/1000 strokes : +- 1.0

Check tolerance
cm³/1000S. : +- 3.0

Spreed
cm³/1000 strokes : 4.0

Check tolerance
cm³/1000S. : 6.5

Rated speed rpm : 425

Rack travel in mm : 5.60
Tolerance mm : +- 0.10
Del. quantity
cm³/1000 strokes : 28.0
cm³/1000 strokes : +- 2.0
Check tolerance
cm³/1000S. : +- 4.0
Spreed
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 8.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE POSITION

Rated speed rpm : 800

Rack travel in mm : 0.50
Tolerance mm : +- 0.20

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1100
Aneroid pressure
hPa : -
Del. quantity
cm³/1000 strokes : 101.5
cm³/1000 strokes : +- 1.0
Check tolerance
cm³/1000S. : +- 3.0

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Spreed
cm³/1000 strokes : 4.0
Check tolerance
cm³/1000S. : 6.5

CONTROL LEVER

control lever
position degree : 95.0
tolerance degree : +- 4.0

RATED SPEED

rack travel mm : 9.60
Rated speed rpm : 1150
Tolerance 1/min : +- 5

rack travel mm : 4.00
Rated speed rpm : 1205
Tolerance 1/min : +- 5

rack travel mm : 0.85
Tolerance mm : +- 0.55
Rated speed rpm : 1300

rack travel mm : 4.00
Rated speed rpm : 1205

LOW IDLE

control lever
position degree : 71.0
tolerance degree : +- 4.0

Setting point w/out bumper spring

Rated speed rpm : 425
rack travel mm : 5.10

Testing:

Rated speed rpm : 425
rack travel mm : 5.60
Tolerance mm : +- 0.10

Rated speed rpm : 100

CRT mm min. : > 19.00

TORQUE CONTROL

Rated speed rpm : 1100
rack travel mm : 10.65
Tolerance mm : +- 0.05

Rated speed rpm : 700
rack travel mm : 12.00
Tolerance mm : \pm 0.20

START CUT-OUT

Rated speed rpm : > 100
Check speed 1/min : > 80

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : -
Rated speed rpm : 700
Del. quantity
cm³/1000 strokes : 126.5
cm³/1000 strokes : \pm 1.5
Check tolerance
cm³/1000S. : \pm 4.0

BREAKAWAY

Rack travel in mm : 9.60
Rated speed rpm : 1150
Tolerance 1/min : \pm 5

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 110.0
cm³/1000 strokes : \pm 10.0
Check tolerance
cm³/1000S. : \pm 15.0

LOW IDLE

Rated speed rpm : 425
Del. quantity
cm³/1000 strokes : 28.0
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.0
Speed
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 8.0

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End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 08.03.96
Test oil : ISO 4113

Combination No. : 0 400 876 395

Injection pump
Pump designation : PES6A100D410RS2676
EP type number : 9 410 230 023

Governor
Governor design. : RSV425...1100A2C2161
: -1L
Governor no. : 9 420 234 133

Cust. part No. : RE23746

Customer-spec. information
Customer : DEERE
Motor : 6466T
Power KW : 120.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 457 413 010

Inlet press. bar : 1.5

Test nozzle holde
assembly : 1 688 901 101

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test Lines : 1 680 750 008

Outside diameter : 6.0

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x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 17.0
Tolerance bar : ± 1.0

Prestroke mm : 2.50
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery mark

*NW after s.o.d. : 15.50
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Barrel no. : 1

Beginning of delivery differende

Difference ° CS : 8.50

BASIC SETTING

Rated speed rpm : 1100

Rack travel in mm : 9.40
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 99.5

cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : ± 3.0

Speed
cm³/1000 strokes : 4.0

Check tolerance
cm³/1000S. : 6.5

Rated speed rpm : 425

Rack travel in mm : 5.40
Tolerance mm : ± 0.10

Del. quantity
cm³/1000 strokes : 22.5

cm³/1000 strokes : ± 2.0

Check tolerance
cm³/1000S. : ± 4.5

Speed
cm³/1000 strokes : 6.0

Check tolerance
cm³/1000S. : 8.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE POSITION

Rated speed rpm : 800

Rack travel in mm : 0.50
Tolerance mm : ± 0.20

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1100

Aneroid pressure
hPa : 700

Del. quantity
cm³/1000 strokes : 99.5

cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : ± 3.0

Speed
cm³/1000 strokes : 4.0

Check tolerance
cm³/1000S. : 6.5

CONTROL LEVER

control lever
position degree : 103.0
tolerance degree : ± 4.0

RATED SPEED

rack travel mm : 8.40
Rated speed rpm : 1150
Tolerance 1/min : ± 5

rack travel mm : 4.00
Rated speed rpm : 1210
Tolerance 1/min : ± 5

rack travel mm : 0.85
Tolerance mm : ± 0.55
Rated speed rpm : 1300

rack travel mm : 4.00
Rated speed rpm : 1210

LOW IDLE

control lever
position degree : 80.0
tolerance degree : ± 4.0

Setting point w/out bumper spring

Rated speed rpm : 425
rack travel mm : 4.90

Testing:

Rated speed rpm : 425
rack travel mm : 5.40
Tolerance mm : ± 0.10

Rated speed rpm : 100

CRT mm min. : > 19.00

TORQUE CONTROL

Rated speed rpm : 1100
rack travel mm : 9.40
Tolerance mm : ± 0.05

Rated speed rpm : 750

rack travel mm : 10.80
Tolerance mm : ± 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 700

MEASUREMENT

Pressure hPa : -
Rated speed rpm : 500
rack travel mm : 9.30
Tolerance mm : ± 0.10

Rated speed rpm : 500

Pressure hPa : 175
rack travel mm : 10.35
Tolerance mm : ± 0.05

Pressure hPa : 80
rack travel mm : 9.60
Tolerance mm : ± 0.20

START CUT-OUT

Rated speed rpm : > 100

Check
speed 1/min : > 80

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 700
Rated speed rpm : 750
Del. quantity
cm³/1000 strokes : 117.5
cm³/1000 strokes : ± 1.5
Check tolerance
cm³/1000S. : ± 3.5

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 88.0
cm³/1000 strokes : ± 2.0
Check tolerance
cm³/1000S. : ± 4.0

BREAKAWAY

Rack travel in mm : 8.40
Rated speed rpm : 1150
Tolerance 1/min : ± 5

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 200.0
cm³/1000 strokes : ± 10.0
Check tolerance
cm³/1000S. : ± 15.0

LOW IDLE

Rated speed rpm : 425
Del. quantity
cm³/1000 strokes : 22.5
cm³/1000 strokes : ± 2.0
Check tolerance
cm³/1000S. : ± 4.5
Speed
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 8.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 04.10.95
Test oil : ISO 4113
Combination No. : 0 400 876 424
Injection pump
Pump designation : PES6A100D41ORS2762
: -1
EP type number : 0 410 806 008
Governor
Governor design. : RSV425...1050A2C2277
: L
Governor no. : 0 420 232 601
Cust. part No. : RE62035

Customer-spec. information

Customer : DEERE
Motor : 6076TRW-30
Power KW : 129.5

TEST BENCH REQUIREMENTS

Inlet line : 2.4
Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0
Overflow valve : 1 457 413 010
Inlet press. bar : 1.5
Test nozzle holder
assembly : 1 688 901 101
Opening pressure
bar : 208.5
Tolerance bar : ± 1.5
Test lines : 1 680 750 008

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Outside diameter : 6.0
x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 17.0
Tolerance bar : ± 1.0
Prestroke mm : 3.00
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10
Rack travel in mm : 10.50
Tolerance mm : ± 1.50
Firing order : 1- 5- 3- 6- 2-
: 4
Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75
Start of delivery mark
°NW after s.o.d. : 13.50
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75
Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1050
Rack travel in mm : 11.20
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 106.5

cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000s. : ± 3.0

Speed
cm³/1000 strokes : 4.0

Check tolerance
cm³/1000s. : 6.5

Rated speed rpm : 425

Rack travel in mm : 5.70
Tolerance mm : ± 0.10
Del. quantity
cm³/1000 strokes : 26.0
cm³/1000 strokes : ± 2.0
Check tolerance
cm³/1000s. : ± 4.0
Speed
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000s. : 8.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE POSITION

Rated speed rpm : 800

Rack travel in mm : 0.50
Tolerance mm : ± 0.20

governor spring
pre-tension
click setting x : 5.00

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1050
Aneroid pressure
hPa : -

Del. quantity
cm³/1000 strokes : 106.5
cm³/1000 strokes : ± 1.0
Check tolerance
cm³/1000s. : ± 3.0
Speed
cm³/1000 strokes : 4.0

Check tolerance
cm³/1000s. : 6.5

CONTROL LEVER

control lever
position degree : 94.0
tolerance degree : ± 4.0

RATED SPEED

rack travel mm : 10.15
Rated speed rpm : 1100
Tolerance 1/min : ± 5

rack travel mm : 4.00
Rated speed rpm : 1170
Tolerance 1/min : ± 5

rack travel mm : 0.85
Tolerance mm : ± 0.55
Rated speed rpm : 1300

rack travel mm : 4.00
Rated speed rpm : 1170

LOW IDLE

control lever
position degree : 72.0
tolerance degree : ± 4.0

Setting point w/out bumper spring

Rated speed rpm : 425
rack travel mm : 5.20

Testing:

Rated speed rpm : 425
rack travel mm : 5.70
Tolerance mm : ± 0.10

Rated speed rpm : 100

CRT mm min. : > 19.00

TORQUE CONTROL

Rated speed rpm : 1050
rack travel mm : 11.20
Tolerance mm : ± 0.05

Rated speed rpm : 750

rack travel mm : 12.85
Tolerance mm : ± 0.10

START CUT-OUT

Rated speed rpm : > 100

Check speed 1/min : > 80

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure

hPa : -

Rated speed rpm : 750

Del. quantity

cm³/1000 strokes : 133.0

cm³/1000 strokes : ± 2.0

Check tolerance

cm³/1000S. : ± 4.0

BREAKAWAY

Rack travel in mm : 10.15

Rated speed rpm : 1100

Tolerance 1/min : ± 5

STARTING FUEL DELIVERY

Rated speed rpm : 100

Del. quantity

cm³/1000 strokes : 110.0

cm³/1000 strokes : ± 10.0

Check tolerance

cm³/1000S. : ± 15.0

LOW IDLE

Rated speed rpm : 425

Del. quantity

cm³/1000 strokes : 26.0

cm³/1000 strokes : ± 2.0

Check tolerance

cm³/1000S. : ± 4.0

Spread

cm³/1000 strokes : 6.0

Check tolerance

cm³/1000S. : 8.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 11.11.96
Test oil : ISO 4113

Combination No. : 0 400 876 429

Injection pump
Pump designation : PES6A95D320LS2853
EP type number : 0 410 896 891

Governor
Governor design. : RSV415...1100A5C2276
: -2R
Governor no. : 0 420 233 347

Cust. part No. : 1824775C91

Customer-spec. information
Customer : NAVISTAR
Motor : DT-466
Power KW : 119.0

TEST BENCH REQUIREMENTS

Inlet line : 4.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 058

Inlet press. bar : 2.8

Test nozzle holde
assembly : 1 688 901 110

Opening pressure
bar : 251.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 17.0
Tolerance bar : ± 1.0

Prestroke mm : 2.50
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.50
Check
tolerance *NW : ± 0.75

BASIC SETTING

Rated speed rpm : 1100

Rack travel in mm : 12.35
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 87.5

cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : ± 3.0

Speed
cm³/1000 strokes : 3.5

Check tolerance
cm³/1000S. : 6.0

Rack travel in mm : 5.60
Tolerance mm : ± 0.10

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE POSITION

Rated speed rpm : 800
Rack travel in mm : 0.50
Tolerance mm : ± 0.20
governor spring
pre-tension
click setting x : 3.50

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1100
Aneroid pressure
hPa : 1200
Del. quantity
cm³/1000 strokes : 87.5
cm³/1000 strokes : ± 1.0
Check tolerance
cm³/1000S. : ± 3.0
Spreed
cm³/1000 strokes : 3.5
Check tolerance
cm³/1000S. : 6.0

CONTROL LEVER

control lever
position degree : 98.0
tolerance degree : ± 6.0

RATED SPEED

rack travel mm : 11.30
Rated speed rpm : 1150
Tolerance 1/min : ± 5
rack travel mm : 4.00
Rated speed rpm : 1210
Tolerance 1/min : ± 5
rack travel mm : 0.85
Tolerance mm : ± 0.55

Rated speed rpm : 1275
rack travel mm : 4.00
Rated speed rpm : 1215

LOW IDLE

control lever
position degree : 72.0
tolerance degree : ± 6.0

Testing:

Rated speed rpm : 415
rack travel mm : 5.60
Tolerance mm : ± 0.10

Rated speed rpm : 100
CRT mm min. : > 19.00

TORQUE CONTROL

Rated speed rpm : 1100
rack travel mm : 12.35
Tolerance mm : ± 0.05
Rated speed rpm : 800
rack travel mm : 14.00
Tolerance mm : ± 0.10

ANEROID/ALTITUDE
COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 1200
rack travel mm : 14.00
Tolerance mm : ± 0.20

MEASUREMENT

Rated speed rpm : 500
Pressure hPa : 330
rack travel mm : 13.50
Tolerance mm : ± 0.20
Pressure hPa : 200
rack travel mm : 12.75
Tolerance mm : ± 0.05

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1200
Rated speed rpm : 800
Del. quantity
cm³/1000 strokes : 108.0
cm³/1000 strokes : ± 2.0
Check tolerance
cm³/1000S. : ± 4.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 96.0
cm³/1000 strokes : ± 2.0
Check tolerance
cm³/1000S. : ± 4.0

BREAKAWAY

Rack travel in mm : 11.30
Rated speed rpm : 1150
Tolerance 1/min : ± 5

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 21.00
Tolerance mm : ± 0.50
Del. quantity
cm³/1000 strokes : 150.5
cm³/1000 strokes : ± 10.0
Check tolerance
cm³/1000S. : ± 15.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 11.11.96
Test oil : ISO 4113
Combination No. : 0 402 046 857
Injection pump
Pump designation : PES6P110A320LS3330
EP type number : 0 412 016 745
Governor
Governor design. : RQV350...1250PA1126K
Governor no. : 0 421 815 383

Cust. part No. : 1823106C91

Customer-spec. information
Customer : NAVISTAR
Motor : DT-408
Power KW : 142.0

TEST BENCH REQUIREMENTS

Inlet line : 2.4
Test oil inlet temp. °C : 40
Tolerance °C : ± 2.0
Overflow valve : 2 417 413 076
Inlet press. bar : 2.8
Tolerance bar : ± 0.1
Test nozzle holder assembly : 1 688 901 101
Opening pressure bar : 208.5
Tolerance bar : ± 1.5
Test lines : 1 680 750 015
Outside diameter : 6.0

x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 17.0
Tolerance bar : ± 1.0

Prestroke mm : 3.00
Tolerance mm : ± 0.05
Check tolerance mm : ± 0.10

Rack travel in mm : 15.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.30
Check tolerance *NW : ± 0.75

Start of delivery blocking

Tolerance : ± 0.50
Check tolerance *NW : ± 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 850

Rack travel in mm : 12.95
Tolerance mm : ± 0.05

Del. quantity cm³/1000 strokes : 128.5

cm3/1000 strokes : + 1.0

 Check tolerance
 cm3/1000S. : + 3.0

 Spreed
 cm3/1000 strokes : 8.0

 Check tolerance
 cm3/1000S. : 12.0
 Rated speed rpm : 325

 Rack travel in mm : 7.70
 Tolerance mm : + 0.10
 Del. quantity
 cm3/1000 strokes : 28.0
 cm3/1000 strokes : + 2.0
 Check tolerance
 cm3/1000S. : + 4.5
 Spreed
 cm3/1000 strokes : 4.0
 Check tolerance
 cm3/1000S. : 6.5

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 850
 Aneroid pressure
 hPa : 1200
 Del. quantity
 cm3/1000 strokes : 128.5
 cm3/1000 strokes : + 1.0
 Check tolerance
 cm3/1000S. : + 3.0
 Spreed
 cm3/1000 strokes : 8.0
 Check tolerance
 cm3/1000S. : 12.0

CONTROL LEVER

control lever
 position degree : 121.0
 tolerance degree : + 6.0

RATED SPEED

rack travel mm : 12.80
 Rated speed rpm : 1310
 Tolerance 1/min : + 15

rack travel mm : 4.00
 Rated speed rpm : 1475
 Tolerance 1/min : + 5

rack travel mm : 0.50
 Tolerance mm : + 0.50
 Rated speed rpm : 1600

LOW IDLE

control lever
 position degree : 79.0
 tolerance degree : + 6.0

Testing:

Rated speed rpm : 325
 rack travel mm : 7.70
 Tolerance mm : + 0.10

Rated speed rpm : 275

CRT mm min. : > 8.50

Rated speed rpm : 405

TORQUE CONTROL

Rated speed rpm : 850
 rack travel mm : 12.95
 Tolerance mm : + 0.05

Rated speed rpm : 1150
 rack travel mm : 13.70
 Tolerance mm : + 0.10

Rated speed rpm : 700
 rack travel mm : 12.60
 Tolerance mm : + 0.20

Rated speed rpm : 1250
 rack travel mm : 13.80
 Tolerance mm : + 0.20

ANEROID/ALTITUDE
COMPENSATOR TEST

SETTING

Rated speed rpm : 1250
 Pressure hPa : 1200
 rack travel mm : 13.80
 Tolerance mm : + 0.10

MEASUREMENT

Pressure hPa : -
Rated speed rpm : 1250
rack travel mm : 11.20
Tolerance mm : + 0.20

Rated speed rpm : 1250

Pressure hPa : 530
rack travel mm : 13.50
Tolerance mm : + 0.20

Pressure hPa : 250
rack travel mm : 12.10
Tolerance mm : + 0.05

START CUT-OUT

Rated speed rpm : > 100
Rated speed rpm : < 280

Check speed 1/min : > 80
Check speed 1/min : < 290

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure hPa : 1200
Rated speed rpm : 1150
Del. quantity cm3/1000 strokes : 142.0
cm3/1000 strokes : + 2.0
Check tolerance cm3/1000S. : + 4.0
Speed cm3/1000 strokes : 8.0
Check tolerance cm3/1000S. : 12.0

Aneroid pressure hPa : -
Rated speed rpm : 1250
Del. quantity cm3/1000 strokes : 93.5
cm3/1000 strokes : + 1.0
Check tolerance cm3/1000S. : + 4.0

BREAKAWAY

Rack travel in mm : 12.80
Rated speed rpm : 1310

B05

Tolerance 1/min : + 15

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.50
Tolerance mm : + 1.00
Del. quantity cm3/1000 strokes : 140.0
cm3/1000 strokes : + 20.0
Check tolerance cm3/1000S. : + 25.0

LOW IDLE

Rated speed rpm : 325
Del. quantity cm3/1000 strokes : 28.0
cm3/1000 strokes : + 2.0
Check tolerance cm3/1000S. : + 4.5
Speed cm3/1000 strokes : 4.0
Check tolerance cm3/1000S. : 6.5

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 08.11.96
Test oil : ISO 4113
Combination No. : 0 402 066 710

Injection pump
Pump designation : PES6P110A120RS3357
EP type number : 0 412 016 754

Governor
Governor design. : RSV400...900P4A633
Governor no. : 0 421 833 541

Cust. part No. : 3931255

Customer-spec. information
Customer : CDC
Motor : 6CTA ELITE
Power KW : 207.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 086

Inlet press. bar : 2.0
Tolerance bar : ± 0.1

Test nozzle holder
assembly : 1 688 901 103

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

B06

x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 17.0
Tolerance bar : ± 1.0

Prestroke mm : 3.60
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.30
Check
tolerance °NW : ± 0.50

Start of delivery blocking

°NW after s.o.d. : 7.75
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 900

Rack travel in mm : 13.35
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 213.0

cm³/1000 strokes : + 1.0

Check tolerance
cm³/1000S. : + 3.0

Spreed
cm³/1000 strokes : 4.0

Check tolerance
cm³/1000S. : 7.5

Rated speed rpm : 400

Rack travel in mm : 6.20
Tolerance mm : + 0.20

Del. quantity
cm³/1000 strokes : 24.0
cm³/1000 strokes : + 2.0
Check tolerance
cm³/1000S. : + 4.5

Spreed
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 9.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE POSITION

Rated speed rpm : 800

Rack travel in mm : 0.50
Tolerance mm : + 0.20

governor spring
pre-tension
click setting x : 4.00

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 900
Aneroid pressure
hPa : -

Del. quantity
cm³/1000 strokes : 213.0
cm³/1000 strokes : + 1.0
Check tolerance
cm³/1000S. : + 3.0

Spreed
cm³/1000 strokes : 4.0

Check tolerance
cm³/1000S. : 7.5

CONTROL LEVER

control lever
position degree : 102.0
tolerance degree : + 4.0

RATED SPEED

rack travel mm : 12.30
Rated speed rpm : 960
Tolerance 1/min : + 5

rack travel mm : 6.40
Rated speed rpm : 990
Tolerance 1/min : + 5

rack travel mm : 0.85
Tolerance mm : + 0.55
Rated speed rpm : 1100

rack travel mm : 6.40
Rated speed rpm : 990

LOW IDLE

control lever
position degree : 77.0
tolerance degree : + 4.0

Setting point w/out bumper spring

Rated speed rpm : 400
rack travel mm : 5.70

Testing:

Rated speed rpm : 400
rack travel mm : 6.20
Tolerance mm : + 0.20

Rated speed rpm : 100
CRT mm min. : < 19.00

TORQUE CONTROL

Rated speed rpm : 900
rack travel mm : 13.35
Tolerance mm : + 0.05

BREAKAWAY

Rack travel in mm : 12.30
Rated speed rpm : 960
Tolerance 1/min : \pm 5

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 21.00
Tolerance mm : \pm 0.50
Del. quantity
cm³/1000 strokes : 165.0
cm³/1000 strokes : \pm 20.0
Check tolerance
cm³/1000S. : \pm 25.0

LOW IDLE

Rated speed rpm : 400
Del. quantity
cm³/1000 strokes : 24.0
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.5
Spreed
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 9.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 13.11.96
Test oil : ISO 4113
Combination No. : 0 402 076 756
Injection pump
Pump designation : PES6P100A320LS3317
EP type number : 0 412 006 706
Governor
Governor design. : RSV400...1200P5A587
Governor no. : 0 421 833 446
Cust. part No. : 1820269C91

Customer-spec. information
Customer : NAVISTAR
Motor : DTA-466
Power KW : 204.0

TEST BENCH REQUIREMENTS

Inlet line : 2.4
Test oil inlet temp. °C : 40
Tolerance °C : ± 2.0
Overflow valve : 1 417 413 076
Inlet press. bar : 2.8
Tolerance bar : ± 0.1
Test nozzle holder assembly : 1 688 901 101
Opening pressure bar : 208.5
Tolerance bar : ± 1.5
Test lines : 1 680 750 015
Outside diameter : 6.0

x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 17.0
Tolerance bar : ± 1.0
Prestroke mm : 3.00
Tolerance mm : ± 0.05
Check tolerance mm : ± 0.10
Rack travel in mm : 10.50
Tolerance mm : ± 1.50
Firing order : 1- 5- 3- 6- 2-
: 4
Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.30
Check tolerance °NW : ± 0.75

BASIC SETTING

Rated speed rpm : 1200
Rack travel in mm : 14.65
Tolerance mm : ± 0.05
Del. quantity cm3/1000 strokes : 176.5
cm3/1000 strokes : ± 1.0
Check tolerance cm3/1000S. : ± 3.0
Speed cm3/1000 strokes : 8.0

Check tolerance
cm³/1000S. : 12.0

Rack travel in mm : 5.20
Tolerance mm : ± 0.10

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE POSITION

Rated speed rpm : 800

Rack travel in mm : 0.50
Tolerance mm : ± 0.20

governor spring
pre-tension
click setting x : 3.50

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1200
Aneroid pressure
hPa : 1500
Del. quantity
cm³/1000 strokes : 176.5
cm³/1000 strokes : ± 1.0
Check tolerance
cm³/1000S. : ± 3.0
Spreed
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

CONTROL LEVER

control lever
position degree : 55.0
tolerance degree : ± 4.0

RATED SPEED

rack travel mm : 13.60
Rated speed rpm : 1245
Tolerance 1/min : ± 5

rack travel mm : 4.00
Rated speed rpm : 1315
Tolerance 1/min : ± 5

rack travel mm : 0.85
Tolerance mm : ± 0.55

Rated speed rpm : 1400

rack travel mm : 4.00
Rated speed rpm : 1320

LOW IDLE

control lever
position degree : 25.0
tolerance degree : ± 4.0

Testing:

Rated speed rpm : 400
rack travel mm : 5.20
Tolerance mm : ± 0.10

Rated speed rpm : 100

CRT mm min. : > 19.00

TORQUE CONTROL

Rated speed rpm : 1200
rack travel mm : 14.65
Tolerance mm : ± 0.05

ANEROID/ALTITUDE
COMPENSATOR TEST

SETTING

Rated speed rpm : 1200
Pressure hPa : 1500
rack travel mm : 14.65
Tolerance mm : ± 0.05

MEASUREMENT

Pressure hPa : -
Rated speed rpm : 500
rack travel mm : 8.40
Tolerance mm : ± 0.20

Rated speed rpm : 1200

Pressure hPa : 650
rack travel mm : 13.20
Tolerance mm : ± 0.20

Pressure hPa : 240
rack travel mm : 9.55
Tolerance mm : ± 0.05

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 72.0
cm³/1000 strokes : +- 2.0
Check tolerance
cm³/1000s. : +- 4.0

BREAKAWAY

Rack travel in mm : 13.60
Rated speed rpm : 1245
Tolerance 1/min : +- 5

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.50
Tolerance mm : +- 0.50
Del. quantity
cm³/1000 strokes : 145.0
cm³/1000 strokes : +- 20.0
Check tolerance
cm³/1000s. : +- 25.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 13.11.96
Test oil : ISO 4113

Combination No. : 0 402 076 757

Injection pump
Pump designation : PES6P100A320LS3319
EP type number : 0 412 006 707

Governor
Governor design. : RSV350...1300P5A565
Governor no. : 0 421 833 414

Cust. part No. : 1820268C91

Customer-spec. information
Customer : NAVISTAR
Motor : DT-408
Power KW : 141.5

TEST BENCH REQUIREMENTS

Inlet line : 2.4

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 076

Inlet press. bar : 2.8

Overflow quantity
min. l/h : 260
Tolerance l/h : ± 10.0

Test nozzle holde
assembly : 1 688 901 101

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 015

Outside diameter : 6.0

x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 17.0
Tolerance bar : ± 1.0

Prestroke mm : 3.00
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.30
Check
tolerance °NW : ± 0.75

BASIC SETTING

Rated speed rpm : 1300

Rack travel in mm : 12.55
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 138.5

cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000s. : ± 3.0

Spreed
 cm3/1000 strokes : 8.0

 Check tolerance
 cm3/1000S. : 12.0

 Rack travel in mm : 5.60
 Tolerance mm : ± 0.10

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

Rated speed rpm : 800
 Rack travel in mm : 0.50
 Tolerance mm : ± 0.20

 governor spring
 pre-tension
 click setting x : 3.75

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1300
 Aneroid pressure
 hPa : 1200
 Del. quantity
 cm3/1000 strokes : 138.5
 cm3/1000 strokes : ± 1.0
 Check tolerance
 cm3/1000S. : ± 3.0
 Spreed
 cm3/1000 strokes : 8.0
 Check tolerance
 cm3/1000S. : 12.0

CONTROL LEVER

control lever
 position degree : 111.0
 tolerance degree : ± 6.0

RATED SPEED

rack travel mm : 11.50
 Rated speed rpm : 1345
 Tolerance 1/min : ± 5

 rack travel mm : 4.00
 Rated speed rpm : 1405

Tolerance 1/min : ± 5
 rack travel mm : 0.85
 Tolerance mm : ± 0.55
 Rated speed rpm : 1500

 rack travel mm : 4.00
 Rated speed rpm : 1410

LOW IDLE

control lever
 position degree : 71.0
 tolerance degree : ± 6.0

Testing:

Rated speed rpm : 350
 rack travel mm : 5.60
 Tolerance mm : ± 0.10

 Rated speed rpm : 100
 CRT mm min. : > 19.00

TORQUE CONTROL

Rated speed rpm : 1300
 rack travel mm : 12.55
 Tolerance mm : ± 0.05

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 1300
 Pressure hPa : 1200
 rack travel mm : 12.55
 Tolerance mm : ± 0.05

MEASUREMENT

Pressure hPa : -
 Rated speed rpm : 500
 rack travel mm : 8.30
 Tolerance mm : ± 0.20

 Rated speed rpm : 1300

 Pressure hPa : 650
 rack travel mm : 11.50
 Tolerance mm : ± 0.20

Pressure hPa : 290
rack travel mm : 9.25
Tolerance mm : \pm 0.05

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : -
Rated speed rpm : 400
Del. quantity
cm³/1000 strokes : 74.5
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.0

BREAKAWAY

Rack travel in mm : 11.50
Rated speed rpm : 1345
Tolerance 1/min : \pm 5

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.50
Tolerance mm : \pm 0.50
Del. quantity
cm³/1000 strokes : 135.0
cm³/1000 strokes : \pm 20.0
Check tolerance
cm³/1000S. : \pm 25.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 13.11.96
Test oil : ISO 4113

Combination No. : 0 402 076 760

Injection pump
Pump designation : PES6P100A320LS3317
EP type number : 0 412 006 706

Governor
Governor design. : RSV415...1100P8A577
Governor no. : 0 421 833 433

Cust. part No. : 1818694C91

Customer-spec. information
Customer : NAVISTAR
Motor : DT-531
Power KW : 145.0

TEST BENCH REQUIREMENTS

Inlet line : 2.4

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 076

Inlet press. bar : 2.8
Tolerance bar : ± 0.1

Test nozzle holder
assembly : 1 688 901 101

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 015

Outside diameter : 6.0

x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 17.0
Tolerance bar : ± 1.0

Prestroke mm : 3.00
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.30
Check
tolerance °NW : ± 0.75

BASIC SETTING

Rated speed rpm : 1100

Rack travel in mm : 12.75
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 138.0

cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : ± 3.0

Speed
cm³/1000 strokes : 8.0

Check tolerance
cm³/1000S. : 12.0

Rack travel in mm : 5.30
Tolerance mm : ± 0.10

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE POSITION

Rated speed rpm : 800
Rack travel in mm : 0.50
Tolerance mm : ± 0.20
governor spring
pre-tension
click setting x : 4.50

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1100
Aneroid pressure
hPa : 1200
Del. quantity
cm³/1000 strokes : 138.0
cm³/1000 strokes : ± 1.0
Check tolerance
cm³/1000S. : ± 3.0
Spreed
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

CONTROL LEVER

control lever
position degree : 52.0
tolerance degree : ± 4.0
control lever
position degree : 102.0
tolerance degree : ± 6.0

RATED SPEED

rack travel mm : 11.40
Rated speed rpm : 1150
Tolerance 1/min : ± 5
rack travel mm : 4.00
Rated speed rpm : 1200

Tolerance 1/min : ± 5
rack travel mm : 0.85
Tolerance mm : ± 0.55
Rated speed rpm : 1300

rack travel mm : 4.00
Rated speed rpm : 1205

LOW IDLE

control lever
position degree : 71.0
tolerance degree : ± 6.0
control lever
position degree : 21.0
tolerance degree : ± 4.0

Testing:

Rated speed rpm : 415
rack travel mm : 5.30
Tolerance mm : ± 0.10

Rated speed rpm : 100
CRT mm min. : > 19.00

TORQUE CONTROL

Rated speed rpm : 1100
rack travel mm : 12.75
Tolerance mm : ± 0.05

ANEROID/ALTITUDE
COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 1200
rack travel mm : 12.75
Tolerance mm : ± 0.05

MEASUREMENT

Pressure hPa : -
Rated speed rpm : 500
rack travel mm : 8.60
Tolerance mm : ± 0.20
Rated speed rpm : 500

Pressure hPa : 480
rack travel mm : 11.40
Tolerance mm : \pm 0.20

Pressure hPa : 240
rack travel mm : 9.45
Tolerance mm : \pm 0.05

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 76.5
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.0

BREAKAWAY

Rack travel in mm : 11.40
Rated speed rpm : 1150
Tolerance 1/min : \pm 5

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.50
Tolerance mm : \pm 0.50
Del. quantity
cm³/1000 strokes : 145.0
cm³/1000 strokes : \pm 20.0
Check tolerance
cm³/1000S. : \pm 25.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 13.11.96
Test oil : ISO 4113
Combination No. : 0 402 076 761
Injection pump
Pump designation : PES6P100A320LS3317
EP type number : 0 412 006 706
Governor
Governor design. : RSV415...1100P8A576
Governor no. : 0 421 833 432
Cust. part No. : 1817593C91

Customer-spec. information
Customer : NAVISTAR
Motor : DT-531
Power KW : 161.0

TEST BENCH REQUIREMENTS

Inlet line : 2.4
Test oil inlet
temp. °C : 40
Tolerance °C : + 2.0
Overflow valve : 1 417 413 076
Inlet press. bar : 2.8
Tolerance bar : + 0.1
Test nozzle holde
assembly : 1 688 901 101
Opening pressure
bar : 208.5
Tolerance bar : + 1.5
Test lines : 1 680 750 015
Outside diameter : 6.0

x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 17.0
Tolerance bar : + 1.0
Prestroke mm : 3.00
Tolerance mm : + 0.05
Check
tolerance mm : + 0.10
Rack travel in mm : 10.50
Tolerance mm : + 1.50
Firing order : 1- 5- 3- 6- 2-
: 4
Phasing : 0-60-120-180-240
: -300
Tolerance : + 0.30
Check
tolerance *NW : + 0.75

BASIC SETTING

Rated speed rpm : 1100
Rack travel in mm : 13.35
Tolerance mm : + 0.05
Del. quantity
cm3/1000 strokes : 151.0
cm3/1000 strokes : + 1.0
Check tolerance
cm3/1000S. : + 3.0
Speed
cm3/1000 strokes : 8.0

Check tolerance
cm³/1000S. : 12.0

Rack travel in mm : 5.30
Tolerance mm : ± 0.10

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE POSITION

Rated speed rpm : 800
Rack travel in mm : 0.50
Tolerance mm : ± 0.20
governor spring
pre-tension
click setting x : 5.00

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1100
Aneroid pressure
hPa : 1200
Del. quantity
cm³/1000 strokes : 151.0
cm³/1000 strokes : ± 1.0
Check tolerance
cm³/1000S. : ± 3.0
Spreed
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

CONTROL LEVER

control lever
position degree : 51.0
tolerance degree : ± 4.0

control lever
position degree : 101.0
tolerance degree : ± 6.0

RATED SPEED

rack travel mm : 12.10
Rated speed rpm : 1150
Tolerance 1/min : ± 5

rack travel mm : 4.00
Rated speed rpm : 1195

Tolerance 1/min : ± 5

rack travel mm : 0.85
Tolerance mm : ± 0.55
Rated speed rpm : 1300

rack travel mm : 4.00
Rated speed rpm : 1200

LOW IDLE

control lever
position degree : 72.0
tolerance degree : ± 6.0

control lever
position degree : 22.0
tolerance degree : ± 4.0

Testing:

Rated speed rpm : 415
rack travel mm : 5.30
Tolerance mm : ± 0.10

Rated speed rpm : 100

CRT mm min. : > 19.00

TORQUE CONTROL

Rated speed rpm : 1100
rack travel mm : 13.35
Tolerance mm : ± 0.05

ANEROID/ALTITUDE
COMPENSATOR TEST

SETTING

Rated speed rpm : 1100
Pressure hPa : 1200
rack travel mm : 13.35
Tolerance mm : ± 0.05

MEASUREMENT

Pressure hPa : -
Rated speed rpm : 500
rack travel mm : 8.60
Tolerance mm : ± 0.20

Rated speed rpm : 1100

Pressure hPa : 540
rack travel mm : 11.90
Tolerance mm : \pm 0.20

Pressure hPa : 250
rack travel mm : 9.45
Tolerance mm : \pm 0.05

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 76.5
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.0

BREAKAWAY

Rack travel in mm : 12.10
Rated speed rpm : 1150
Tolerance 1/min : \pm 5

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.50
Tolerance mm : \pm 0.50
Del. quantity
cm³/1000 strokes : 145.0
cm³/1000 strokes : \pm 20.0
Check tolerance
cm³/1000S. : \pm 25.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 13.11.96
Test oil : ISO 4113

Combination No. : 0 402 076 763

Injection pump
Pump designation : PES6P100A32OLS3317
EP type number : 0 412 006 706

Governor
Governor design. : RSV415...1100P8A579
Governor no. : 0 421 833 435

Cust. part No. : 1822012C91

Customer-spec. information
Customer : NAVISTAR
Motor : DT-466
Power KW : 134.0

TEST BENCH REQUIREMENTS

Inlet line : 2.4

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 076

Inlet press. bar : 2.8
Tolerance bar : ± 0.1

Test nozzle holder
assembly : 1 688 901 101

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 015

Outside diameter : 6.0

x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 17.0
Tolerance bar : ± 1.0

Prestroke mm : 3.00
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.30
Check
tolerance °NW : ± 0.75

BASIC SETTING

Rated speed rpm : 1100

Rack travel in mm : 12.35
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 125.5
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : ± 3.0

Speed
cm³/1000 strokes : 8.0

Check tolerance
cm³/1000S. : 12.0

Rack travel in mm : 5.40
Tolerance mm : ± 0.10

(B) SETTING OF INJECTION PUMP
WITH GOV VOR

GUIDE SLEEVE POSITION

Rated speed rpm : 800

Rack travel in mm : 0.50
Tolerance mm : ± 0.20

governor spring
pre-tension
click setting x : 5.00

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1100
Aneroid pressure
hPa : 1200
Del. quantity
cm³/1000 strokes : 125.5
cm³/1000 strokes : ± 1.0
Check tolerance
cm³/1000S. : ± 3.0
Spreed
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

CONTROL LEVER

control lever
position degree : 55.0
tolerance degree : ± 4.0

control lever
position degree : 105.0
tolerance degree : ± 6.0

RATED SPEED

rack travel mm : 11.20
Rated speed rpm : 1160
Tolerance 1/min : ± 5

rack travel mm : 4.00
Rated speed rpm : 1195

Tolerance 1/min : ± 5

rack travel mm : 0.85
Tolerance mm : ± 0.55
Rated speed rpm : 1300

rack travel mm : 4.00
Rated speed rpm : 1200

LOW IDLE

control lever
position degree : 74.0
tolerance degree : ± 6.0

control lever
position degree : 24.0
tolerance degree : ± 4.0

Testing:

Rated speed rpm : 415
rack travel mm : 5.40
Tolerance mm : ± 0.10

Rated speed rpm : 100

CRT mm min. : > 19.00

TORQUE CONTROL

Rated speed rpm : 1100
rack travel mm : 12.35
Tolerance mm : ± 0.05

ANEROID/ALTITUDE
COMPENSATOR TEST

SETTING

Rated speed rpm : 1100
Pressure hPa : 1200
rack travel mm : 12.35
Tolerance mm : ± 0.05

MEASUREMENT

Pressure hPa : -
Rated speed rpm : 500
rack travel mm : 8.90
Tolerance mm : ± 0.20

Rated speed rpm : 1100

Pressure hPa : 440
rack travel mm : 11.40
Tolerance mm : \pm 0.20

Pressure hPa : 240
rack travel mm : 9.75
Tolerance mm : \pm 0.05

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 81.5
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.0

BREAKAWAY

Rack travel in mm : 11.20
Rated speed rpm : 1160
Tolerance 1/min : \pm 5

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.50
Tolerance mm : \pm 0.50
Del. quantity
cm³/1000 strokes : 130.0
cm³/1000 strokes : \pm 20.0
Check tolerance
cm³/1000S. : \pm 25.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 13.11.96
Test oil : ISO 4113

Combination No. : 0 402 076 769

Injection pump
Pump designation : PES6P100A320LS3319
EP type number : 0 412 006 707

Governor
Governor design. : RSV350...1300P5A588
Governor no. : 0 421 833 448

Cust. part No. : 1820888C91

Customer-spec. information
Customer : NAVISTAR
Motor : DT-408
Power KW : 171.5

TEST BENCH REQUIREMENTS

Inlet line : 4.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 076

Inlet press. bar : 2.8

Overflow quantity
min. l/h : 260
Tolerance l/h : ± 10.0

Test nozzle holder
assembly : 1 688 901 101

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 015

Outside diameter : 6.0

x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 17.0
Tolerance bar : ± 1.0

Prestroke mm : 3.00
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.30
Check
tolerance °NW : ± 0.75

BASIC SETTING

Rated speed rpm : 1300

Rack travel in mm : 13.05
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 149.5

cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : ± 3.0

<hr/>	
Spreed	
cm ³ /1000 strokes :	8.0
<hr/>	
Check tolerance	
cm ³ /1000S.	: 12.0
<hr/>	
Rack travel in mm :	5.60
Tolerance mm :	+ 0.10

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE POSITION

Rated speed rpm :	800
<hr/>	
Rack travel in mm :	0.50
Tolerance mm :	+ 0.20
<hr/>	
governor spring	
pre-tension	
click setting x :	3.75

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm :	1300
Aneroid pressure	
hPa :	1200
Del. quantity	
cm ³ /1000 strokes :	149.5
cm ³ /1000 strokes :	+ 1.0
Check tolerance	
cm ³ /1000S.	: + 3.0
Spreed	
cm ³ /1000 strokes :	8.0
Check tolerance	
cm ³ /1000S.	: 12.0

CONTROL LEVER

control lever	
position degree :	111.0
tolerance degree :	+ 6.0

RATED SPEED

rack travel mm :	12.00
Rated speed rpm :	1345
Tolerance 1/min :	+ 5
<hr/>	
rack travel mm :	4.00
Rated speed rpm :	1405

B25

Tolerance 1/min :	+ 5
rack travel mm :	0.85
Tolerance mm :	+ 0.55
Rated speed rpm :	1500
<hr/>	
rack travel mm :	4.00
Rated speed rpm :	1410

LOW IDLE

control lever	
position degree :	71.0
tolerance degree :	+ 6.0

Testing:

Rated speed rpm :	350
rack travel mm :	5.60
Tolerance mm :	+ 0.10
<hr/>	
Rated speed rpm :	100
CRT mm min. :	> 19.00

TORQUE CONTROL

Rated speed rpm :	1300
rack travel mm :	13.05
Tolerance mm :	+ 0.05

ANEROID/ALTITUDE
COMPENSATOR TEST

SETTING

Rated speed rpm :	1300
Pressure hPa :	1200
rack travel mm :	13.05
Tolerance mm :	+ 0.05

MEASUREMENT

Pressure hPa :	-
Rated speed rpm :	500
rack travel mm :	8.30
Tolerance mm :	+ 0.20

Rated speed rpm :	1300
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Pressure hPa :	710
rack travel mm :	11.80
Tolerance mm :	+ 0.20

Pressure hPa : 320
rack travel mm : 9.35
Tolerance mm : \pm 0.05

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : -
Rated speed rpm : 400
Del. quantity
cm³/1000 strokes : 74.5
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.0

BREAKAWAY

Rack travel in mm : 12.00
Rated speed rpm : 1345
Tolerance 1/min : \pm 5

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.50
Tolerance mm : \pm 0.50
Del. quantity
cm³/1000 strokes : 135.0
cm³/1000 strokes : \pm 20.0
Check tolerance
cm³/1000S. : \pm 25.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 11.11.96
Test oil : ISO 4113

Combination No. : 0 402 076 770

Injection pump
Pump designation : PES6P110A320LS3318
: -1
EP type number : 0 412 016 749

Governor
Governor design. : RSV350...750P4A561
: -1
Governor no. : 0 421 833 451

Cust. part No. : 1823837C92

Customer-spec. information
Customer : NAVISTAR
Motor : DT-531
Power KW : 224.0

TEST BENCH REQUIREMENTS

Inlet line : 4.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 076

Inlet press. bar : 2.8
Tolerance bar : ± 0.1

Test nozzle holde
assembly : 1 688 901 101

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test Lines : 1 680 750 015

B27

Outside diameter : 6.0
x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 17.0
Tolerance bar : ± 1.0

Prestroke mm : 3.00
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.30
Check
tolerance °NW : ± 0.50

BASIC SETTING

Rated speed rpm : 650

Rack travel in mm : 12.55
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 225.5

cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : ± 3.0

Speed

cm3/1000 strokes : 4.0

 Check tolerance
 cm3/1000S. : 6.5
 Rated speed rpm : 340

 Rack travel in mm : 5.20
 Tolerance mm : +- 0.10
 Del. quantity
 cm3/1000 strokes : 35.0
 cm3/1000 strokes : +- 2.0
 Check tolerance
 cm3/1000S. : +- 4.5
 Spreed
 cm3/1000 strokes : 8.0
 Check tolerance
 cm3/1000S. : 12.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

Rated speed rpm : 800

 Rack travel in mm : 0.50
 Tolerance mm : +- 0.20

 governor spring
 pre-tension
 click setting x : 4.00

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 650
 Aneroid pressure
 hPa : -
 Del. quantity
 cm3/1000 strokes : 225.5
 cm3/1000 strokes : +- 1.0
 Check tolerance
 cm3/1000S. : +- 3.0
 Spreed
 cm3/1000 strokes : 4.0
 Check tolerance
 cm3/1000S. : 6.5

CONTROL LEVER

control lever
 position degree : 47.0
 tolerance degree : +- 4.0

RATED SPEED

rack travel mm : 10.20
 Rated speed rpm : 750
 Tolerance 1/min : +- 5

 rack travel mm : 4.00
 Rated speed rpm : 800
 Tolerance 1/min : +- 5

 rack travel mm : 0.85
 Tolerance mm : +- 0.55
 Rated speed rpm : 900

 rack travel mm : 4.00
 Rated speed rpm : 805

LOW IDLE

control lever
 position degree : 26.0
 tolerance degree : +- 4.0

Testing:

Rated speed rpm : 340
 rack travel mm : 5.20
 Tolerance mm : +- 0.10

 Rated speed rpm : 100

 CRT mm min. : > 19.00

TORQUE CONTROL

Rated speed rpm : 650
 rack travel mm : 12.55
 Tolerance mm : +- 0.05

BREAKAWAY

Rack travel in mm : 10.20
 Rated speed rpm : 750
 Tolerance 1/min : +- 5

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.50
Tolerance mm : \pm 0.50
Del. quantity
cm³/1000 strokes : 145.0
cm³/1000 strokes : \pm 20.0
Check tolerance
cm³/1000S. : \pm 25.0

LOW IDLE

Rated speed rpm : 340
Del. quantity
cm³/1000 strokes : 35.0
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.5
Spreed
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 13.11.96
Test oil : ISO 4113

Combination No. : 0 402 076 772

Injection pump
Pump designation : PES6P100A320LS3342
EP type number : 0 412 006 710

Governor
Governor design. : RSV415...1100P8A593
Governor no. : 0 421 833 456

Cust. part No. : 1823921C91

Customer-spec. information
Customer : NAVISTAR
Motor : DT-466
Power KW : 135.0

TEST BENCH REQUIREMENTS

Inlet line : 4.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 076

Inlet press. bar : 2.8
Tolerance bar : ± 0.1

Test nozzle holde
assembly : 1 688 901 101

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 015

Outside diameter : 6.0

C02

x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 17.0
Tolerance bar : ± 1.0

Prestroke mm : 3.00
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.30
Check
tolerance °NW : ± 0.75

BASIC SETTING

Rated speed rpm : 1100

Rack travel in mm : 11.20
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 98.5

cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : ± 3.0

Speed
cm³/1000 strokes : 8.0

Check tolerance
cm³/1000S. : 12.0

Rack travel in mm : 5.50
Tolerance mm : ± 0.10

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE POSITION

Rated speed rpm : 800
Rack travel in mm : 0.50
Tolerance mm : ± 0.20

governor spring
pre-tension
click setting x : 4.00

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1100
Aneroid pressure
hPa : 1200
Del. quantity
cm³/1000 strokes : 98.5
cm³/1000 strokes : ± 1.0
Check tolerance
cm³/1000S. : ± 3.0
Speed
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

CONTROL LEVER

control lever
position degree : 102.0
tolerance degree : ± 6.0

RATED SPEED

rack travel mm : 10.20
Rated speed rpm : 1150
Tolerance 1/min : ± 5
rack travel mm : 4.00
Rated speed rpm : 1190
Tolerance 1/min : ± 5
rack travel mm : 0.85
Tolerance mm : ± 0.55

C03

Rated speed rpm : 1300
rack travel mm : 4.00
Rated speed rpm : 1195

LOW IDLE

control lever
position degree : 70.0
tolerance degree : ± 6.0

Testing:

Rated speed rpm : 415
rack travel mm : 5.50
Tolerance mm : ± 0.10

Rated speed rpm : 100
CRT mm min. : > 19.00

TORQUE CONTROL

Rated speed rpm : 1100
rack travel mm : 11.20
Tolerance mm : ± 0.05
Rated speed rpm : 800
rack travel mm : 12.35
Tolerance mm : ± 0.10

ANEROID/ALTITUDE
COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 1200
rack travel mm : 12.35
Tolerance mm : ± 0.20

MEASUREMENT

Rated speed rpm : 500
Pressure hPa : 420
rack travel mm : 11.50
Tolerance mm : ± 0.20
Pressure hPa : 210
rack travel mm : 9.70
Tolerance mm : ± 0.05

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : -
Rated speed rpm : 800
Del. quantity
cm³/1000 strokes : 127.5
cm³/1000 strokes : +- 2.0
Check tolerance
cm³/1000S. : +- 4.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 82.0
cm³/1000 strokes : +- 2.0
Check tolerance
cm³/1000S. : +- 4.0

BREAKAWAY

Rack travel in mm : 10.20
Rated speed rpm : 1150
Tolerance 1/min : +- 5

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 21.00
Tolerance mm : +- 0.50
Del. quantity
cm³/1000 strokes : 153.0
cm³/1000 strokes : +- 20.0
Check tolerance
cm³/1000S. : +- 25.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 13.11.96
Test oil : ISO 4113
Combination No. : 0 402 076 773
Injection pump
Pump designation : PES6P100A320LS3342
EP type number : 0 412 006 710
Governor
Governor design. : RSV415...1100P8A595
Governor no. : 0 421 833 461
Cust. part No. : 1824625C91

Customer-spec. information
Customer : NAVISTAR
Motor : DT-530
Power KW : 168.0

TEST BENCH REQUIREMENTS

Inlet line : 4.2
Test oil inlet temp. °C : 40
Tolerance °C : ± 2.0
Overflow valve : 1 417 413 076
Inlet press. bar : 2.8
Tolerance bar : ± 0.1
Test nozzle holder assembly : 1 688 901 101
Opening pressure bar : 208.5
Tolerance bar : ± 1.5
Test lines : 1 680 750 015
Outside diameter : 6.0

x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant. per values _____

BEGINNING OF DELIVERY

Test pressure bar : 17.0
Tolerance bar : ± 1.0
Prestroke mm : 3.00
Tolerance mm : ± 0.05
Check tolerance mm : ± 0.10
Rack travel in mm : 10.50
Tolerance mm : ± 1.50
Firing order : 1- 5- 3- 6- 2-
: 4
Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.30
Check tolerance *NW : ± 0.75

BASIC SETTING

Rated speed rpm : 1100
Rack travel in mm : 12.45
Tolerance mm : ± 0.05
Del. quantity cm³/1000 strokes : 120.0
cm³/1000 strokes : ± 1.0
Check tolerance cm³/1000S. : ± 3.0
Speed cm³/1000 strokes : 8.0

Check tolerance
cm³/1000S. : 12.0

Rack travel in mm : 5.80
Tolerance mm : ± 0.10

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE POSITION

Rated speed rpm : 800
Rack travel in mm : 0.50
Tolerance mm : ± 0.20
governor spring
pre-tension
click setting x : 4.00

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1100
Aneroid pressure
hPa : 1200
Del. quantity
cm³/1000 strokes : 120.0
cm³/1000 strokes : ± 1.0
Check tolerance
cm³/1000S. : ± 3.0
Spreed
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

CONTROL LEVER

control lever
position degree : 107.0
tolerance degree : ± 6.0

RATED SPEED

rack travel mm : 11.40
Rated speed rpm : 1150
Tolerance 1/min : ± 5
rack travel mm : 4.00
Rated speed rpm : 1200
Tolerance 1/min : ± 5
rack travel mm : 0.85
Tolerance mm : ± 0.55

C06

Rated speed rpm : 1300
rack travel mm : 4.00
Rated speed rpm : 1205

LOW IDLE

control lever
position degree : 77.0
tolerance degree : ± 6.0

Testing:

Rated speed rpm : 415
rack travel mm : 5.80
Tolerance mm : ± 0.10
Rated speed rpm : 100
CRT mm min. : > 19.00

TORQUE CONTROL

Rated speed rpm : 1100
rack travel mm : 12.45
Tolerance mm : ± 0.05
Rated speed rpm : 800
rack travel mm : 13.40
Tolerance mm : ± 0.10

ANEROID/ALTITUDE
COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 1200
rack travel mm : 13.40
Tolerance mm : ± 0.05

MEASUREMENT

Rated speed rpm : 500
Pressure hPa : 510
rack travel mm : 12.20
Tolerance mm : ± 0.20
Pressure hPa : 250
rack travel mm : 10.05
Tolerance mm : ± 0.05

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : -
Rated speed rpm : 800
Del. quantity
cm³/1000 strokes : 146.5
cm³/1000 strokes : ± 2.0
Check tolerance
cm³/1000S. : ± 4.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 78.5
cm³/1000 strokes : ± 2.0
Check tolerance
cm³/1000S. : ± 4.0

BREAKAWAY

Rack travel in mm : 11.40
Rated speed rpm : 1150
Tolerance 1/min : ± 5

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.50
Tolerance mm : ± 0.50
Del. quantity
cm³/1000 strokes : 160.0
cm³/1000 strokes : ± 20.0
Check tolerance
cm³/1000S. : ± 25.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 13.11.96
Test oil : ISO 4113
Combination No. : 0 402 076 774
Injection pump
Pump designation : PES6P100A320LS3342
EP type number : 0 412 006 710
Governor
Governor design. : RSV415...1100P8A596
Governor no. : 0 421 833 462

Cust. part No. : 1824624C91

Customer-spec. information
Customer : NAVISTAR
Motor : DT-530
Power KW : 187.0

TEST BENCH REQUIREMENTS

Inlet line : 4.2
Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0
Overflow valve : 1 417 413 076
Inlet press. bar : 2.8
Tolerance bar : ± 0.1
Test nozzle holde
assembly : 1 688 901 101
Opening pressure
bar : 208.5
Tolerance bar : ± 1.5
Test lines : 1 680 750 015
Outside diameter : 6.0

C08

x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 17.0
Tolerance bar : ± 1.0
Prestroke mm : 3.00
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10
Rack travel in mm : 10.50
Tolerance mm : ± 1.50
Firing order : 1- 5- 3- 6- 2-
: 4
Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.30
Check
tolerance °NW : ± 0.75

BASIC SETTING

Rated speed rpm : 1100
Rack travel in mm : 11.55
Tolerance mm : ± 0.05
Del. quantity
cm3/1000 strokes : 109.0
cm3/1000 strokes : ± 1.0
Check tolerance
cm3/1000S. : ± 3.0
Speed
cm3/1000 strokes : 8.0

Check tolerance
cm³/1000S. : 12.0

Rack travel in mm : 5.20
Tolerance mm : ± 0.10

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE POSITION

Rated speed rpm : 800
Rack travel in mm : 0.50
Tolerance mm : ± 0.20

governor spring
pre-tension
click setting x : 4.00

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1100
Aneroid pressure
hPa : 1200
Del. quantity
cm³/1000 strokes : 109.0
cm³/1000 strokes : ± 1.0
Check tolerance
cm³/1000S. : ± 3.0
Spreed
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

CONTROL LEVER

control lever
position degree : 105.0
tolerance degree : ± 6.0

RATED SPEED

rack travel mm : 10.50
Rated speed rpm : 1150
Tolerance 1/min : ± 5
rack travel mm : 4.00
Rated speed rpm : 1200
Tolerance 1/min : ± 5
rack travel mm : 0.85
Tolerance mm : ± 0.55

Rated speed rpm : 1300
rack travel mm : 4.00
Rated speed rpm : 1205

LOW IDLE

control lever
position degree : 75.0
tolerance degree : ± 6.0

Testing:

Rated speed rpm : 415
rack travel mm : 5.20
Tolerance mm : ± 0.10

Rated speed rpm : 100
CRT mm min. : > 19.00

TORQUE CONTROL

Rated speed rpm : 1100
rack travel mm : 11.55
Tolerance mm : ± 0.05
Rated speed rpm : 800
rack travel mm : 12.50
Tolerance mm : ± 0.10

ANEROID/ALTITUDE
COMPENSATOR TEST

SETTING

Rated speed rpm : 800
Pressure hPa : 1200
rack travel mm : 12.50
Tolerance mm : ± 0.20

MEASUREMENT

Rated speed rpm : 800
Pressure hPa : 445
rack travel mm : 11.40
Tolerance mm : ± 0.20
Pressure hPa : 230
rack travel mm : 9.50
Tolerance mm : ± 0.05

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1200
Rated speed rpm : 800
Del. quantity
cm³/1000 strokes : 138.5
cm³/1000 strokes : ± 2.0
Check tolerance
cm³/1000S. : ± 4.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 77.5
cm³/1000 strokes : ± 2.0
Check tolerance
cm³/1000S. : ± 4.0

BREAKAWAY

Rack travel in mm : 10.50
Rated speed rpm : 1150
Tolerance 1/min : ± 5

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 21.00
Tolerance mm : ± 0.50
Del. quantity
cm³/1000 strokes : 153.0
cm³/1000 strokes : ± 20.0
Check tolerance
cm³/1000S. : ± 25.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 13.11.96
Test oil : ISO 4113
Combination No. : 0 402 076 775
Injection pump
Pump designation : PES6P100A320LS3342
EP type number : 0 412 006 710
Governor
Governor design. : RSV415...1100P8A597
Governor no. : 0 421 833 463

Cust. part No. : 1824626C91

Customer-spec. information
Customer : NAVISTAR
Motor : DT-530
Power KW : 153.0

TEST BENCH REQUIREMENTS

Inlet line : 4.2
Test oil inlet
temp. °C : 40
Tolerance °C : + 2.0
Overflow valve : 1 417 413 076
Inlet press. bar : 2.8
Tolerance bar : + 0.1
Test nozzle holde
assembly : 1 688 901 101
Opening pressure
bar : 208.5
Tolerance bar : + 1.5
Test lines : 1 680 750 015
Outside diameter : 6.0

x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 17.0
Tolerance bar : + 1.0
Prestroke mm : 3.00
Tolerance mm : + 0.05
Check
tolerance mm : + 0.10
Rack travel in mm : 10.50
Tolerance mm : + 1.50
Firing order : 1- 5- 3- 6- 2-
: 4
Phasing : 0-60-120-180-240
: -300
Tolerance : + 0.30
Check
tolerance °NW : + 0.75

BASIC SETTING

Rated speed rpm : 1100
Rack travel in mm : 11.55
Tolerance mm : + 0.05
Del. quantity
cm³/1000 strokes : 104.5
cm³/1000 strokes : + 1.0
Check tolerance
cm³/1000S. : + 3.0
Spreed
cm³/1000 strokes : 8.0

Check tolerance
cm³/1000S. : 12.0

Rack travel in mm : 5.60
Tolerance mm : ± 0.10

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE POSITION

Rated speed rpm : 800

Rack travel in mm : 0.50
Tolerance mm : ± 0.20

governor spring
pre-tension
click setting x : 4.75

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1100
Aneroid pressure
hPa : 1200
Del. quantity
cm³/1000 strokes : 104.5
cm³/1000 strokes : ± 1.0
Check tolerance
cm³/1000S. : ± 3.0
Spreed
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

CONTROL LEVER

control lever
position degree : 104.0
tolerance degree : ± 6.0

RATED SPEED

rack travel mm : 10.50
Rated speed rpm : 1150
Tolerance 1/min : ± 5
rack travel mm : 4.00
Rated speed rpm : 1200
Tolerance 1/min : ± 5
rack travel mm : 0.85
Tolerance mm : ± 0.55

Rated speed rpm : 1300
rack travel mm : 4.00
Rated speed rpm : 1205

LOW IDLE

control lever
position degree : 74.0
tolerance degree : ± 6.0

Testing:

Rated speed rpm : 415
rack travel mm : 5.60
Tolerance mm : ± 0.10

Rated speed rpm : 100
CRT mm min. : > 19.00

TORQUE CONTROL

Rated speed rpm : 1100
rack travel mm : 11.55
Tolerance mm : ± 0.05
Rated speed rpm : 800
rack travel mm : 12.50
Tolerance mm : ± 0.10

ANEROID/ALTITUDE
COMPENSATOR TEST

SETTING

Rated speed rpm : 800
Pressure hPa : 1200
rack travel mm : 12.55
Tolerance mm : ± 0.10

MEASUREMENT

Rated speed rpm : 800
Pressure hPa : 435
rack travel mm : 11.60
Tolerance mm : ± 0.20
Pressure hPa : 250
rack travel mm : 10.05
Tolerance mm : ± 0.05

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : -
Rated speed rpm : 800
Del. quantity
cm³/1000 strokes : 131.0
cm³/1000 strokes : ± 2.0
Check tolerance
cm³/1000S. : ± 4.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 78.5
cm³/1000 strokes : ± 2.0
Check tolerance
cm³/1000S. : ± 4.0

BREAKAWAY

Rack travel in mm : 10.50
Rated speed rpm : 1150
Tolerance 1/min : ± 5

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.50
Tolerance mm : ± 0.50
Del. quantity
cm³/1000 strokes : 150.0
cm³/1000 strokes : ± 20.0
Check tolerance
cm³/1000S. : ± 25.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 11.11.96
Test oil : ISO 4113

Combination No. : 0 402 736 813

Injection pump
Pump designation : PES6P110A120RS7214
EP type number : 0 412 716 805

Governor
Governor design. : RQV350...1100PA964
: -5K
Governor no. : 0 421 815 257

Cust. part No. : 3921772

Customer-spec. information
Customer : CDC
Motor : 6CTA-A
Power KW : 187.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 1.5

Test nozzle holde
assembly : 1 688 901 101

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 17.0
Tolerance bar : ± 1.0
Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery blocking

°NW before FB : 5.50
Tolerance : ± 0.10
Check
tolerance °NW : ± 0.23

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1100

Rack travel in mm : 14.55
Tolerance mm : ± 0.05

Del. quantity
cm3/1000 strokes : 187.5

cm3/1000 strokes : ± 1.0

Check tolerance
cm3/1000S. : ± 4.0

Speed

cm3/1000 strokes : 5.0

 Check tolerance
 cm3/1000S. : 9.0
 Rated speed rpm : 350

 Rack travel in mm : 5.60
 Tolerance mm : + 0.10
 Del. quantity
 cm3/1000 strokes : 30.0
 cm3/1000 strokes : + 3.0
 Check tolerance
 cm3/1000S. : + 5.0
 Spreed
 cm3/1000 strokes : 8.0
 Check tolerance
 cm3/1000S. : 12.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 350
 guide sleeve
 travel mm : 1.90
 Tolerance mm : + 0.10

Rated speed rpm : 1000
 guide sleeve
 travel mm : 8.20
 Tolerance mm : + 0.10

Rated speed rpm : 450
 guide sleeve
 travel mm : 3.30
 Tolerance mm : + 0.20

Rated speed rpm : 600
 guide sleeve
 travel mm : 5.30
 Tolerance mm : + 0.20

Rated speed rpm : 1200
 guide sleeve
 travel mm : 9.80
 Tolerance mm : + 0.20

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1100
 Aneroid pressure
 hPa : 1500
 Del. quantity
 cm3/1000 strokes : 187.5

cm3/1000 strokes : + 1.0
 Check tolerance
 cm3/1000S. : + 4.0
 Spreed
 cm3/1000 strokes : 5.0
 Check tolerance
 cm3/1000S. : 9.0

CONTROL LEVER

control lever
 position degree : 118.0
 tolerance degree : + 4.0

RATED SPEED

rack travel mm : 13.50
 Rated speed rpm : 1150
 Tolerance 1/min : + 5

rack travel mm : 4.00
 Rated speed rpm : 1305
 Tolerance 1/min : + 15

rack travel mm : 0.50
 Tolerance mm : + 0.50
 Rated speed rpm : 1400

LOW IDLE

control lever
 position degree : 67.0
 tolerance degree : + 4.0

Testing:

Rated speed rpm : 350
 rack travel mm : 5.60
 Tolerance mm : + 0.10

Rated speed rpm : 275

CRT mm min. : > 7.20

Rated speed rpm : 425

TORQUE CONTROL

Rated speed rpm : 1100
 rack travel mm : 14.55
 Tolerance mm : + 0.05

Rated speed rpm : 650
 rack travel mm : 13.60

Tolerance mm : ± 0.10
Rated speed rpm : 500
rack travel mm : 13.10
Tolerance mm : ± 0.20

ANEROID/ALTITUDE
COMPENSATOR TEST

SETTING

Rated speed rpm : 1100
Pressure hPa : 1500

MEASUREMENT

Pressure hPa : -
Rated speed rpm : 1100
rack travel mm : 7.90
Tolerance mm : ± 0.20

Rated speed rpm : 1100

Pressure hPa : 845
rack travel mm : 13.80
Tolerance mm : ± 0.20

Pressure hPa : 335
rack travel mm : 10.15
Tolerance mm : ± 0.05

START CUT-OUT

Rated speed rpm : > 100
Rated speed rpm : < 290

Check speed 1/min : > 80
Check speed 1/min : < 300

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure hPa : 1500
Rated speed rpm : 650
Del. quantity cm³/1000 strokes : 203.5
cm³/1000 strokes : ± 3.0
Check tolerance cm³/1000S. : ± 6.0
Spreed cm³/1000 strokes : 8.0
Check tolerance cm³/1000S. : 12.0

Aneroid pressure hPa : -
Rated speed rpm : 500
Del. quantity cm³/1000 strokes : 93.0
cm³/1000 strokes : ± 2.0
Check tolerance cm³/1000S. : ± 4.0

BREAKAWAY

Rack travel in mm : 13.50
Rated speed rpm : 1150
Tolerance 1/min : ± 5

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 11.30
Tolerance mm : ± 0.50
Del. quantity cm³/1000 strokes : 155.0
cm³/1000 strokes : ± 20.0
Check tolerance cm³/1000S. : ± 25.0

LOW IDLE

Rated speed rpm : 350
Del. quantity cm³/1000 strokes : 30.0
cm³/1000 strokes : ± 3.0
Check tolerance cm³/1000S. : ± 5.0
Spreed cm³/1000 strokes : 8.0
Check tolerance cm³/1000S. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 18.11.96
Test oil : ISO 4113

Combination No. : 0 402 034 700

Injection pump
Pump designation : PES4P120B120RS3379
EP type number : 0 412 024 702

Governor
Governor design. : RQV475...1100PA1314K
Governor no. : 0 421 815 543

Cust. part No. : 3928601

Customer-spec. information
Customer : CDC
Motor : 4BTA-A
Power KW : 93.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 093

Inlet press. bar : 2.0
Tolerance bar : ± 0.1

Test nozzle holder
assembly : 1 688 901 103

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 015

Outside diameter : 6.0

x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 17.0
Tolerance bar : ± 1.0

Prestroke mm : 3.60
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270
Tolerance : ± 0.30
Check
tolerance °NW : ± 0.75

Start of delivery blocking

*NW after s.o.d. : 6.50
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1100

Rack travel in mm : 11.45
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 140.5

cm ³ /1000 strokes	: ±	1.0
<hr/>		
Check tolerance cm ³ /1000S.	: ±	4.0
<hr/>		
Spreed cm ³ /1000 strokes	:	8.0
<hr/>		
Check tolerance cm ³ /1000S.	:	12.0
<hr/>		
Rated speed rpm	:	475
<hr/>		
Rack travel in mm	:	5.70
Tolerance mm	: ±	0.10
Del. quantity cm ³ /1000 strokes	:	26.5
cm ³ /1000 strokes	: ±	3.0
Check tolerance cm ³ /1000S.	: ±	5.0
Spreed cm ³ /1000 strokes	:	4.0
Check tolerance cm ³ /1000S.	:	8.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm	:	475
guide sleeve travel mm	:	1.59
Tolerance mm	: ±	0.20
<hr/>		
Rated speed rpm	:	1163
guide sleeve travel mm	:	7.66
Tolerance mm	: ±	0.15
<hr/>		
Rated speed rpm	:	931
guide sleeve travel mm	:	5.89
Tolerance mm	: ±	0.25
<hr/>		
Rated speed rpm	:	670
guide sleeve travel mm	:	3.53
Tolerance mm	: ±	0.25
<hr/>		
Rated speed rpm	:	1660
guide sleeve travel mm	:	13.50
Tolerance mm	: ±	0.50

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm	:	1100
Aneroid pressure hPa	:	1200
Del. quantity cm ³ /1000 strokes	:	140.5
cm ³ /1000 strokes	: ±	1.0
Check tolerance cm ³ /1000S.	: ±	4.0
Spreed cm ³ /1000 strokes	:	8.0
Check tolerance cm ³ /1000S.	:	12.0

CONTROL LEVER

control lever position degree	:	113.0
tolerance degree	: ±	4.0

RATED SPEED

rack travel mm	:	10.40
Rated speed rpm	:	1155
Tolerance 1/min	: ±	15

rack travel mm	:	6.70
Rated speed rpm	:	1230
Tolerance 1/min	: ±	5

rack travel mm	:	0.50
Tolerance mm	: ±	0.50
Rated speed rpm	:	1350

LOW IDLE

control lever position degree	:	70.0
tolerance degree	: ±	4.0

Testing:

Rated speed rpm	:	475
rack travel mm	:	5.70
Tolerance mm	: ±	0.10

Rated speed rpm	:	400
CRT mm min.	:	> 6.80

Rated speed rpm	:	550
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TORQUE CONTROL

Rated speed rpm : 1100
rack travel mm : 11.45
Tolerance mm : ± 0.05

Rated speed rpm : 750
rack travel mm : 11.30
Tolerance mm : ± 0.20

Rated speed rpm : 550
rack travel mm : 10.90
Tolerance mm : ± 0.20

**ANEROID/ALTITUDE
COMPENSATOR TEST****SETTING**

Rated speed rpm : 1100
Pressure hPa : 1200

MEASUREMENT

Pressure hPa : -
Rated speed rpm : 1100
rack travel mm : 9.60
Tolerance mm : ± 0.20

Rated speed rpm : 1100

Pressure hPa : 765
rack travel mm : 11.00
Tolerance mm : ± 0.20

Pressure hPa : 600
rack travel mm : 10.00
Tolerance mm : ± 0.20

START CUT-OUT

Rated speed rpm : > 100
Rated speed rpm : < 415

Check
speed 1/min : > 80
Check
speed 1/min : < 425

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1200
Rated speed rpm : 750

Del. quantity
cm³/1000 strokes : 144.5
cm³/1000 strokes : ± 3.0
Check tolerance
cm³/1000s. : ± 6.0

Speed
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000s. : 12.0

Aneroid pressure
hPa : -
Rated speed rpm : 1100
Del. quantity
cm³/1000 strokes : 107.0
cm³/1000 strokes : ± 1.0
Check tolerance
cm³/1000s. : ± 3.0

BREAKAWAY

Rack travel in mm : 10.40
Rated speed rpm : 1155
Tolerance 1/min : ± 15

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 21.00
Tolerance mm : ± 0.50
Del. quantity
cm³/1000 strokes : 176.0
cm³/1000 strokes : ± 20.0
Check tolerance
cm³/1000s. : ± 25.0

LOW IDLE

Rated speed rpm : 475
Del. quantity
cm³/1000 strokes : 26.5
cm³/1000 strokes : ± 3.0
Check tolerance
cm³/1000s. : ± 5.0
Speed
cm³/1000 strokes : 4.0
Check tolerance
cm³/1000s. : 8.0

End of test specification sheet



BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 19.11.96
Test oil : ISO 4113

Combination No. : 0 402 736 913

Injection pump
Pump designation : PES6P120A120RS7369
EP type number : 0 412 726 935

Governor
Governor design. : RQV400...1400PA1211
 : -1K
Governor no. : 0 421 815 530

Cust. part No. : 3931538

Customer-spec. information
Customer : CDC
Motor : 6BTA-A
Power KW : 160.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 093

Inlet press. bar : 2.0
Tolerance bar : ± 0.1

Test nozzle holde
assembly : 1 688 901 103

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 015

Outside diameter : 6.0
x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 17.0
Tolerance bar : ± 1.0

Prestroke mm : 3.00
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 12.00
Tolerance mm : ± 0.50

Firing order : 1- 5- 3- 6- 2-
 : 4

Phasing : 0-60-120-180-240
 : -300
Tolerance : ± 0.30
Check
tolerance °NW : ± 0.75

Start of delivery blocking

*NW after s.o.d. : 6.75
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1300

Rack travel in mm : 14.45
Tolerance mm : ± 0.05

Del. quantity	_____
cm3/1000 strokes	: 180.0
cm3/1000 strokes	: ± 1.0
Check tolerance	_____
cm3/1000S.	: ± 4.0
Spreed	_____
cm3/1000 strokes	: 8.0
Check tolerance	_____
cm3/1000S.	: 13.0
Rated speed rpm	: 420
Rack travel in mm	: 6.10
Tolerance mm	: ± 0.20
Del. quantity	_____
cm3/1000 strokes	: 16.5
cm3/1000 strokes	: ± 3.0
Check tolerance	_____
cm3/1000S.	: ± 5.0
Spreed	_____
cm3/1000 strokes	: 3.0
Check tolerance	_____
cm3/1000S.	: 7.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm	: 400
guide sleeve	_____
travel mm	: 2.01
Tolerance mm	: ± 0.25
Rated speed rpm	: 1410
guide sleeve	_____
travel mm	: 8.73
Tolerance mm	: ± 0.25
Rated speed rpm	: 1488
guide sleeve	_____
travel mm	: 9.53
Tolerance mm	: ± 0.25
Rated speed rpm	: 462
guide sleeve	_____
travel mm	: 2.91
Tolerance mm	: ± 0.25
Rated speed rpm	: 512
guide sleeve	_____
travel mm	: 3.37

Tolerance mm	: ± 0.25
Rated speed rpm	: 1000
guide sleeve	_____
travel mm	: 5.53
Tolerance mm	: ± 0.25
Rated speed rpm	: 2130
guide sleeve	_____
travel mm	: 13.50
Tolerance mm	: ± 0.50

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm	: 1300
Aneroid pressure	_____
hPa	: 1500
Del. quantity	_____
cm3/1000 strokes	: 180.0
cm3/1000 strokes	: ± 1.0
Check tolerance	_____
cm3/1000S.	: ± 4.0
Spreed	_____
cm3/1000 strokes	: 8.0
Check tolerance	_____
cm3/1000S.	: 13.0

CONTROL LEVER

control lever	_____
position degree	: 117.0
tolerance degree	: ± 6.0

RATED SPEED

rack travel mm	: 13.40
Rated speed rpm	: 1450
Tolerance 1/min	: ± 25
rack travel mm	: 5.50
Rated speed rpm	: 1650
Tolerance 1/min	: ± 5
rack travel mm	: 0.50
Tolerance mm	: ± 0.50
Rated speed rpm	: 1850

LOW IDLE

control lever	_____
position degree	: 67.0
tolerance degree	: ± 6.0

Testing:

Rated speed rpm : 420
rack travel mm : 6.10
Tolerance mm : ± 0.20

Rated speed rpm : 300
CRT mm min. : > 8.70

Rated speed rpm : 425

TORQUE CONTROL

Rated speed rpm : 1300
rack travel mm : 14.45
Tolerance mm : ± 0.05

Rated speed rpm : 800
rack travel mm : 11.80
Tolerance mm : ± 0.20

Rated speed rpm : 1100
rack travel mm : 13.30
Tolerance mm : ± 0.20

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 1300
Pressure hPa : 1500

MEASUREMENT

Pressure hPa : -
Rated speed rpm : 1300
rack travel mm : 9.50
Tolerance mm : ± 0.20

Rated speed rpm : 1300

Pressure hPa : 965
rack travel mm : 13.00
Tolerance mm : ± 0.30

Pressure hPa : 390
rack travel mm : 10.80
Tolerance mm : ± 0.20

START CUT-OUT

Rated speed rpm : > 100
Rated speed rpm : < 340

Check
speed 1/min : > 80
Check
speed 1/min : < 350

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1500
Rated speed rpm : 800
Del. quantity
cm³/1000 strokes : 118.0
cm³/1000 strokes : ± 3.0
Check tolerance
cm³/1000S. : ± 6.0
Spreed
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 13.0

Aneroid pressure
hPa : -
Rated speed rpm : 1300
Del. quantity
cm³/1000 strokes : 79.5
cm³/1000 strokes : ± 2.0
Check tolerance
cm³/1000S. : ± 4.0

BREAKAWAY

Rack travel in mm : 13.40
Rated speed rpm : 1450
Tolerance 1/min : ± 25

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 12.80
Tolerance mm : ± 0.50
Del. quantity
cm³/1000 strokes : 157.0
cm³/1000 strokes : ± 20.0
Check tolerance
cm³/1000S. : ± 25.0

LOW IDLE

Rated speed rpm : 420
Del. quantity
cm³/1000 strokes : 16.5
cm³/1000 strokes : ± 3.0

Check tolerance
cm³/1000S. : ± 5.0
Spreed
cm³/1000 strokes : 3.0
Check tolerance
cm³/1000S. : 7.0

End of test specification sheet



BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 19.11.96
Test oil : ISO 4113

Combination No. : 0 402 746 615

Injection pump
Pump designation : PES6P120A320RS7419
EP type number : 0 412 726 961

Governor
Governor design. : RQV300...1250PA1289K
Governor no. : 0 421 815 520

Cust. part No. : 386 6800

Customer-spec. information
Customer : CDC
Motor : 6CTA
Power KW : 249.5

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 093

Inlet press. bar : 2.0
Tolerance bar : ± 0.1

Test nozzle holder
assembly : 1 688 901 103

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 015

Outside diameter : 6.0

C25

x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 17.0
Tolerance bar : ± 1.0

Prestroke mm : 3.60
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.30
Check
tolerance °NW : ± 0.75

Start of delivery blocking

°NW after s.o.d. : 12.25
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1250

Rack travel in mm : 12.60
Tolerance mm : ± 0.05

<hr/>	
Del. quantity	
cm ³ /1000 strokes	: 203.5
<hr/>	
cm ³ /1000 strokes	: ± 1.0
<hr/>	
Check tolerance	
cm ³ /1000S.	: ± 4.0
<hr/>	
Spreed	
cm ³ /1000 strokes	: 8.0
<hr/>	
Check tolerance	
cm ³ /1000S.	: 12.0
<hr/>	
Rated speed rpm	: 300
<hr/>	
Rack travel in mm	: 6.35
Tolerance mm	: ± 0.20
Del. quantity	
cm ³ /1000 strokes	: 32.5
cm ³ /1000 strokes	: ± 3.0
Check tolerance	
cm ³ /1000S.	: ± 5.0
Spreed	
cm ³ /1000 strokes	: 5.0
Check tolerance	
cm ³ /1000S.	: 8.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm	: 300
guide sleeve	
travel mm	: 1.29
Tolerance mm	: ± 0.20
<hr/>	
Rated speed rpm	: 1372
guide sleeve	
travel mm	: 9.86
Tolerance mm	: ± 0.15
<hr/>	
Rated speed rpm	: 917
guide sleeve	
travel mm	: 6.76
Tolerance mm	: ± 0.25
<hr/>	
Rated speed rpm	: 590
guide sleeve	
travel mm	: 4.95
Tolerance mm	: ± 0.25
<hr/>	
Rated speed rpm	: 1710
guide sleeve	
travel mm	: 13.50

Tolerance mm : ± 0.50

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm	: 1250
Aneroid pressure	
hPa	: 1200
Del. quantity	
cm ³ /1000 strokes	: 203.5
cm ³ /1000 strokes	: ± 1.0
Check tolerance	
cm ³ /1000S.	: ± 4.0
Spreed	
cm ³ /1000 strokes	: 8.0
Check tolerance	
cm ³ /1000S.	: 12.0

CONTROL LEVER

control lever	
position degree	: 117.0
tolerance degree	: ± 4.0

RATED SPEED

rack travel mm	: 11.60
Rated speed rpm	: 1320
Tolerance 1/min	: ± 5
<hr/>	
rack travel mm	: 4.00
Rated speed rpm	: 1470
Tolerance 1/min	: ± 15
<hr/>	
rack travel mm	: 0.50
Tolerance mm	: ± 0.50
Rated speed rpm	: 1575

LOW IDLE

control lever	
position degree	: 75.0
tolerance degree	: ± 4.0

Testing:

Rated speed rpm	: 300
rack travel mm	: 6.35
Tolerance mm	: ± 0.20
<hr/>	
Rated speed rpm	: 250
<hr/>	
CRT mm min.	: > 7.80
<hr/>	
Rated speed rpm	: 450

TORQUE CONTROL

Rated speed rpm : 1250
rack travel mm : 12.60
Tolerance mm : + 0.05

Rated speed rpm : 800
rack travel mm : 12.20
Tolerance mm : + 0.10

Rated speed rpm : 1100
rack travel mm : 12.55
Tolerance mm : + 0.10

ANEROID/ALTITUDE
COMPENSATOR TEST

SETTING

Rated speed rpm : 1100
Pressure hPa : 1200

MEASUREMENT

Pressure hPa : -
Rated speed rpm : 1100
rack travel mm : 9.70
Tolerance mm : + 0.20

Rated speed rpm : 1100

Pressure hPa : 670
rack travel mm : 11.80
Tolerance mm : + 0.20

Pressure hPa : 385
rack travel mm : 10.50
Tolerance mm : + 0.20

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1200
Rated speed rpm : 800
Del. quantity
cm³/1000 strokes : 206.0
cm³/1000 strokes : + 3.0
Check tolerance
cm³/1000S. : + 6.0
Spreed
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

C27

Aneroid pressure
hPa : -
Rated speed rpm : 1100
Del. quantity
cm³/1000 strokes : 122.0
cm³/1000 strokes : + 1.0
Check tolerance
cm³/1000S. : + 3.0

BREAKAWAY

Rack travel in mm : 11.60
Rated speed rpm : 1320
Tolerance 1/min : + 5

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 9.70
Tolerance mm : + 0.20
Del. quantity
cm³/1000 strokes : 176.5
cm³/1000 strokes : + 20.0
Check tolerance
cm³/1000S. : + 25.0

LOW IDLE

Rated speed rpm : 300
Del. quantity
cm³/1000 strokes : 32.5
cm³/1000 strokes : + 3.0
Check tolerance
cm³/1000S. : + 5.0
Spreed
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. : 8.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 19.11.96
Test oil : ISO 4113

Combination No. : 0 402 746 617

Injection pump
Pump designation : PES6P120A720RS7423
EP type number : 0 412 726 963

Governor
Governor design. : RQV325...975PA909
: -12K
Governor no. : 0 421 815 531

Cust. part No. : 313GC5224-P10

Customer-spec. information
Customer : MACK
Motor : EN7300A
Power KW : 223.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 084

Inlet press. bar : 2.8
Tolerance bar : ± 0.1

Test nozzle holder
assembly : 1 688 901 101

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0
x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 17.0
Tolerance bar : ± 1.0

Prestroke mm : 2.80
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.00

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.30
Check
tolerance °NW : ± 0.75

Start of delivery blocking
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 975

Rack travel in mm : 12.55
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 202.0

cm ³ /1000 strokes	: ±	1.0
<hr/>		
Check tolerance cm ³ /1000S.	: ±	4.0
<hr/>		
Spreed cm ³ /1000 strokes	:	5.0
<hr/>		
Check tolerance cm ³ /1000S.	:	9.0
<hr/>		
Rack travel in mm	:	5.30
Tolerance mm	: ±	0.10

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm	:	325
guide sleeve travel mm	:	1.27
Tolerance mm	: ±	0.20

Rated speed rpm	:	1030
guide sleeve travel mm	:	8.84
Tolerance mm	: ±	0.15

Rated speed rpm	:	524
guide sleeve travel mm	:	3.30
Tolerance mm	: ±	0.25

Rated speed rpm	:	390
guide sleeve travel mm	:	2.30
Tolerance mm	: ±	0.25

Rated speed rpm	:	1430
guide sleeve travel mm	:	13.50
Tolerance mm	: ±	0.50

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm	:	975
Aneroid pressure hPa	:	1200
Del. quantity cm ³ /1000 strokes	:	202.0
cm ³ /1000 strokes	: ±	1.0
Check tolerance cm ³ /1000S.	: ±	4.0
Spreed		

D01

cm ³ /1000 strokes	:	5.0
Check tolerance cm ³ /1000S.	:	9.0

CONTROL LEVER

control lever position degree	:	110.0
tolerance degree	: ±	4.0

RATED SPEED

rack travel mm	:	11.60
Rated speed rpm	:	1020
Tolerance 1/min	: ±	5

rack travel mm	:	4.00
Rated speed rpm	:	1170
Tolerance 1/min	: ±	15

rack travel mm	:	0.50
Tolerance mm	: ±	0.50
Rated speed rpm	:	1250

LOW IDLE

control lever position degree	:	64.0
tolerance degree	: ±	4.0

Testing:

Rated speed rpm	:	325
rack travel mm	:	5.30
Tolerance mm	: ±	0.10

Rated speed rpm	:	225
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CRT mm min.	:	> 4.80
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Rated speed rpm	:	400
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TORQUE CONTROL

Rated speed rpm	:	975
rack travel mm	:	12.55
Tolerance mm	: ±	0.05

Rated speed rpm	:	600
rack travel mm	:	12.00
Tolerance mm	: ±	0.10

Rated speed rpm	:	500
rack travel mm	:	11.50

Tolerance mm : ± 0.20

ANEROID/ALTITUDE
COMPENSATOR TEST

SETTING

Rated speed rpm : 975
Pressure hPa : 1200
rack travel mm : 12.55
Tolerance mm : ± 0.05

MEASUREMENT

Pressure hPa : -
Rated speed rpm : 975
rack travel mm : 8.20
Tolerance mm : ± 0.20

Rated speed rpm : 975

Pressure hPa : 460
rack travel mm : 11.30
Tolerance mm : ± 0.20

Pressure hPa : 235
rack travel mm : 9.30
Tolerance mm : ± 0.05

START CUT-OUT

Rated speed rpm : > 100
Rated speed rpm : < 275

Check
speed 1/min : > 80
Check
speed 1/min : < 285

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1200
Rated speed rpm : 600
Del. quantity
cm³/1000 strokes : 223.5
cm³/1000 strokes : ± 3.0
Check tolerance
cm³/1000S. : ± 6.0
Spreed
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

Aneroid pressure
hPa : -

D02

Rated speed rpm : 400
Del. quantity
cm³/1000 strokes : 148.0
cm³/1000 strokes : ± 2.0
Check tolerance
cm³/1000S. : ± 4.0

BREAKAWAY

Rack travel in mm : 11.60
Rated speed rpm : 1020
Tolerance 1/min : ± 5

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 10.80
Tolerance mm : ± 1.00
Del. quantity
cm³/1000 strokes : 205.0
cm³/1000 strokes : ± 20.0
Check tolerance
cm³/1000S. : ± 30.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 20.11.96
Test oil : ISO 4113

Combination No. : 9 400 030 722

Injection pump
Pump designation : PES4A95D320/3RS2880
EP type number : 9 410 037 214

Governor
Governor design. : RSV475...1100AOC837R
Governor no. : 9 420 034 707

Cust. part No. : DEP: 3928603

Customer-spec. information
Customer : CDC
Motor : CUMMINS-4BTA-3.9
Power KW : 82.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 2.0
Tolerance bar : ± 0.1

Test nozzle holde
assembly : 1 688 901 101

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 17.0
Tolerance bar : ± 1.0

Prestroke mm : 2.45
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270
Tolerance : ± 0.50
Check
tolerance *NW : ± 0.75

Start of delivery blocking

*NW after s.o.d. : 9.00
Tolerance : ± 0.10
Check
tolerance *NW : ± 0.29

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1100

Rack travel in mm : 12.85
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 110.0

cm³/1000 strokes : +- 1.0

Check tolerance
cm³/1000S. : +- 3.0

Spreed
cm³/1000 strokes : 4.0

Check tolerance
cm³/1000S. : 6.5

Rated speed rpm : 475

Rack travel in mm : 6.15
Tolerance mm : +- 0.10
Del. quantity
cm³/1000 strokes : 22.6
cm³/1000 strokes : +- 2.0
Check tolerance
cm³/1000S. : +- 4.5
Spreed
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 8.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE POSITION

Rated speed rpm : 800

Rack travel in mm : 0.50
Tolerance mm : +- 0.20

governor spring
pre-tension
click setting x : 4.25

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1100
Aneroid pressure
hPa : 1200
Del. quantity
cm³/1000 strokes : 110.0
cm³/1000 strokes : +- 1.0
Check tolerance
cm³/1000S. : +- 3.0
Spreed
cm³/1000 strokes : 4.0

Check tolerance
cm³/1000S. : 6.5

CONTROL LEVER

control lever
position degree : 106.0
tolerance degree : +- 4.0

RATED SPEED

rack travel mm : 11.80
Rated speed rpm : 1150
Tolerance 1/min : +- 5

rack travel mm : 6.50
Rated speed rpm : 1225
Tolerance 1/min : +- 5

rack travel mm : 0.85
Tolerance mm : +- 0.55
Rated speed rpm : 1350

rack travel mm : 6.50
Rated speed rpm : 1225

LOW IDLE

control lever
position degree : 85.0
tolerance degree : +- 4.0

Setting point w/out bumper spring

Rated speed rpm : 475
rack travel mm : 5.65

Testing:

Rated speed rpm : 475
rack travel mm : 6.15
Tolerance mm : +- 0.10

Rated speed rpm : 100

CRT mm min. : > 19.00

TORQUE CONTROL

Rated speed rpm : 1100
rack travel mm : 12.85
Tolerance mm : +- 0.05

Rated speed rpm : 750

rack travel mm : 14.20
Tolerance mm : ± 0.20

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 800
Pressure hPa : 1200

MEASUREMENT

Pressure hPa : -
Rated speed rpm : 800
rack travel mm : 10.90
Tolerance mm : ± 0.20

Rated speed rpm : 800

Pressure hPa : 650
rack travel mm : 12.45
Tolerance mm : ± 0.20

Pressure hPa : 550
rack travel mm : 11.75
Tolerance mm : ± 0.20

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1200
Rated speed rpm : 750
Del. quantity
cm³/1000 strokes : 130.0
cm³/1000 strokes : ± 2.0
Check tolerance
cm³/1000S. : ± 4.0

Aneroid pressure
hPa : -
Rated speed rpm : 800
Del. quantity
cm³/1000 strokes : 84.0
cm³/1000 strokes : ± 1.0
Check tolerance
cm³/1000S. : ± 3.0

BREAKAWAY

Rack travel in mm : 11.80
Rated speed rpm : 1150
Tolerance 1/min : ± 5

D05

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.50
Tolerance mm : ± 0.50
Del. quantity
cm³/1000 strokes : 121.4
cm³/1000 strokes : ± 10.0
Check tolerance
cm³/1000S. : ± 15.0

LOW IDLE

Rated speed rpm : 475
Del. quantity
cm³/1000 strokes : 22.6
cm³/1000 strokes : ± 2.0
Check tolerance
cm³/1000S. : ± 4.5
Spread
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 8.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 31.10.96
Test oil : ISO 4113
Combination No. : 0 401 856 700
Injection pump
Pump designation : PE6P110A721RS3101
EP type number : 0 411 816 725
Governor
Governor design. : RQ300/1200PA412
Governor no. : 0 421 801 172

Cust. part No. :

Customer-spec. information
Customer : SNF
Motor : WD615.67
Power KW : 206.0

TEST BENCH REQUIREMENTS

Inlet line : 4.1
Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0
Overflow valve : 1 417 413 025
Inlet press. bar : 1.5
Test nozzle holder
assembly : 0 681 343 009
Opening pressure
bar : 173.5
Tolerance bar : ± 1.5
Test lines : 1 680 750 089
Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0
Prestroke mm : 2.85
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10
Rack travel in mm : 10.50
Tolerance mm : ± 1.50
Firing order : 1- 5- 3- 6- 2-
: 4
Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.30
Check
tolerance °NW : ± 0.50
Start of delivery mark
Tolerance : ± 0.10
Check
tolerance °NW : ± 0.75
Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1200
Rack travel in mm : 12.05
Tolerance mm : ± 0.05
Del. quantity
cm³/1000 strokes : 163.0

cm³/1000 strokes : +- 1.0

Check tolerance
cm³/1000S. : +- 4.0

Spreed
cm³/1000 strokes : 4.0

Check tolerance
cm³/1000S. : 7.5

Rated speed rpm : 300

Rack travel in mm : 6.00
Tolerance mm : +- 0.10

Del. quantity
cm³/1000 strokes : 15.0
cm³/1000 strokes : +- 3.0

Check tolerance
cm³/1000S. : +- 5.5

Spreed
cm³/1000 strokes : 4.5

Check tolerance
cm³/1000S. : 7.5

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE POSITION

Rated speed rpm : 600

Rack travel in mm : 16.00
Tolerance mm : +- 0.60

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1200

Aneroid pressure
hPa : 700

Del. quantity
cm³/1000 strokes : 163.0
cm³/1000 strokes : +- 1.0

Check tolerance
cm³/1000S. : +- 4.0

Spreed
cm³/1000 strokes : 4.0

Check tolerance
cm³/1000S. : 7.5

CONTROL LEVER

control lever
position degree : 40.0
tolerance degree : +- 4.0

RATED SPEED

rack travel mm : 11.00
Rated speed rpm : 1253
Tolerance 1/min : +- 8

rack travel mm : 4.00
Rated speed rpm : 1340
Tolerance 1/min : +- 15

rack travel mm : 0.75
Tolerance mm : +- 0.75
Rated speed rpm : 1450

LOW IDLE

control lever
position degree : 14.0
tolerance degree : +- 4.0

Testing:

Rated speed rpm : 300
rack travel mm : 6.00
Tolerance mm : +- 0.10

rack travel mm : 2.00
Rated speed rpm : 425
Tolerance 1/min : +- 20

Rated speed rpm : 100

CRT mm min. : > 7.50

TORQUE CONTROL

Dimension a mm : 0.35
Rated speed rpm : 1200
rack travel mm : 12.05
Tolerance mm : +- 0.05

Rated speed rpm : 700
rack travel mm : 12.45
Tolerance mm : +- 0.05

Rated speed rpm : 1075
rack travel mm : 12.30
Tolerance mm : +- 0.15

Rated speed rpm : 600
rack travel mm : 12.75

Tolerance mm : + 0.20

ANEROID/ALTITUDE
COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 700
rack travel mm : 12.45
Tolerance mm : + 0.05

MEASUREMENT

Pressure hPa : -
Rated speed rpm : 500
rack travel mm : 10.00
Tolerance mm : + 0.10

Rated speed rpm : 500

Pressure hPa : 420
rack travel mm : 11.55
Tolerance mm : + 0.05

Pressure hPa : 330
rack travel mm : 10.40
Tolerance mm : + 0.15

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 700
Rated speed rpm : 700
Del. quantity
cm³/1000 strokes : 167.0
cm³/1000 strokes : + 2.0
Check tolerance
cm³/1000S. : + 4.0

Aneroid pressure
hPa : -
Rated speed rpm : 700
Del. quantity
cm³/1000 strokes : 121.0
cm³/1000 strokes : + 1.0
Check tolerance
cm³/1000S. : + 4.0

BREAKAWAY

Rack travel in mm : 11.00
Rated speed rpm : 1253

D08

Tolerance 1/min : + 8

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.50
Tolerance mm : + 0.50
Del. quantity
cm³/1000 strokes : 220.0
cm³/1000 strokes : + 15.0
Check tolerance
cm³/1000S. : + 19.0

LOW IDLE

Rated speed rpm : 300
Del. quantity
cm³/1000 strokes : 15.0
cm³/1000 strokes : + 3.0
Check tolerance
cm³/1000S. : + 5.5
Speed
cm³/1000 strokes : 4.5
Check tolerance
cm³/1000S. : 7.5

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 04.11.96
Test oil : ISO 4113

Combination No. : 0 401 876 761

Injection pump
Pump designation : PE6P120B320RS3206
EP type number : 0 411 826 820

Governor
Governor design. : RSV250...900P4A657
Governor no. : 0 421 833 575

Cust. part No. : 3826529 P01 v. 10/96

Customer-spec. information
Customer : VOLVO-PENTA
Motor : TAMD122 A
Power KW : 280.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Vibration damper
(RoBo diaphragm) : 4.1

Test oil inlet temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 077

Inlet press. bar : 1.5
Tolerance bar : ± 0.1

Test nozzle holder assembly : 1 688 901 019

Opening pressure bar : 208.5
Tolerance bar : ± 1.5

D09

Test lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 3.55
Tolerance mm : ± 0.05
Check tolerance mm : ± 0.10

Rack travel in mm : 8.70
Tolerance mm : ± 0.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.30
Check tolerance *NW : ± 0.50

Start of delivery mark

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 700

Rack travel in mm : 11.40
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 264.0

cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : ± 4.0

Spreed
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

Rated speed rpm : 250

Rack travel in mm : 5.10
Tolerance mm : ± 0.10
Del. quantity
cm³/1000 strokes : 20.0
cm³/1000 strokes : ± 3.0
Check tolerance
cm³/1000S. : ± 6.0
Spreed
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. : 7.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE POSITION

Rated speed rpm : 800

Rack travel in mm : 0.50
Tolerance mm : ± 0.20

governor spring
pre-tension
click setting x : 4.00

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 700
Aneroid pressure
hPa : 1500
Del. quantity
cm³/1000 strokes : 264.0
cm³/1000 strokes : ± 1.0
Check tolerance
cm³/1000S. : ± 4.0
Spreed
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

CONTROL LEVER

control lever
position degree : 62.0
tolerance degree : ± 4.0

control lever
position degree : 112.0
tolerance degree : ± 4.0

RATED SPEED

rack travel mm : 10.40
Rated speed rpm : 960
Tolerance 1/min : ± 5

rack travel mm : 4.00
Rated speed rpm : 1000
Tolerance 1/min : ± 15

rack travel mm : 0.85
Tolerance mm : ± 0.55
Rated speed rpm : 1130

rack travel mm : 4.00
Rated speed rpm : 1010

LOW IDLE

control lever
position degree : 78.0
tolerance degree : ± 4.0

control lever
position degree : 28.0
tolerance degree : ± 4.0

Setting point w/out bumper spring

Rated speed rpm : 250
rack travel mm : 4.60

Testing:

Rated speed rpm : 250
rack travel mm : 5.10
Tolerance mm : ± 0.10

rack travel mm : 2.00
Rated speed rpm : 410
Tolerance 1/min : ± 30

TORQUE CONTROL

Rated speed rpm : 700
rack travel mm : 11.40
Tolerance mm : +- 0.05

ANEROID/ALTITUDE
COMPENSATOR TEST

SETTING

Rated speed rpm : 700
Pressure hPa : 1500
rack travel mm : 11.40
Tolerance mm : +- 0.05

MEASUREMENT

Pressure hPa : -
Rated speed rpm : 700
rack travel mm : 8.70
Tolerance mm : +- 0.10

Rated speed rpm : 700

Pressure hPa : 770
rack travel mm : 2.70
Tolerance mm : +- 0.20

Pressure hPa : 240
rack travel mm : 0.25
Tolerance mm : +- 0.05

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : -
Rated speed rpm : 700
Del. quantity
cm³/1000 strokes : 178.0
cm³/1000 strokes : +- 1.0
Check tolerance
cm³/1000S. : +- 4.0

BREAKAWAY

Rack travel in mm : 10.40
Rated speed rpm : 960
Tolerance 1/min : +- 5

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 8.70
Tolerance mm : +- 0.10

LOW IDLE

Rated speed rpm : 250
Del. quantity
cm³/1000 strokes : 20.0
cm³/1000 strokes : +- 3.0
Check tolerance
cm³/1000S. : +- 6.0
Speed
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. : 7.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 06.11.96
Test oil : ISO 4113

Combination No. : 0 401 876 762

Injection pump
Pump designation : PE6P120B32ORS3206
EP type number : 0 411 826 820

Governor
Governor design. : RSV250...900P4A660
Governor no. : 0 421 833 578

Cust. part No. : 3826532 P01 v.10/96

Customer-spec. information
Customer : VOLVO-PENTA
Motor : TMD 122 A (HD)
Power KW : 235.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Vibration damper
(RoBo diaphragm) : 4.1

Test oil inlet temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 077

Inlet press. bar : 1.5
Tolerance bar : ± 0.1

Test nozzle holder assembly : 1 688 901 019

Opening pressure bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 3.55
Tolerance mm : ± 0.05
Check tolerance mm : ± 0.10

Rack travel in mm : 8.70
Tolerance mm : ± 0.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.30
Check tolerance °NW : ± 0.50

Start of delivery mark

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 700

Rack travel in mm : 9.95
Tolerance mm : ± 0.05

Del. quantity cm³/1000 strokes : 213.5

cm ³ /1000 strokes	: ±	1.0
Check tolerance cm ³ /1000S.	: ±	4.0
Spreed cm ³ /1000 strokes	:	5.0
Check tolerance cm ³ /1000S.	:	9.0
Rated speed rpm	:	250
Rack travel in mm	:	5.10
Tolerance mm	: ±	0.10
Del. quantity cm ³ /1000 strokes	:	20.0
cm ³ /1000 strokes	: ±	3.0
Check tolerance cm ³ /1000S.	: ±	6.0
Spreed cm ³ /1000 strokes	:	5.0
Check tolerance cm ³ /1000S.	:	8.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE POSITION

Rated speed rpm	:	800
Rack travel in mm	:	0.50
Tolerance mm	: ±	0.20
governor spring pre-tension click setting x	:	6.00

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm	:	700
Aneroid pressure hPa	:	1000
Del. quantity cm ³ /1000 strokes	:	213.5
cm ³ /1000 strokes	: ±	1.0
Check tolerance cm ³ /1000S.	: ±	4.0
Spreed cm ³ /1000 strokes	:	5.0
Check tolerance cm ³ /1000S.	:	9.0

CONTROL LEVER

control lever position degree	:	60.0
tolerance degree	: ±	4.0

control lever position degree	:	108.0
tolerance degree	: ±	4.0

RATED SPEED

rack travel mm	:	8.95
Rated speed rpm	:	930
Tolerance 1/min	: ±	5

rack travel mm	:	4.00
Rated speed rpm	:	980
Tolerance 1/min	: ±	15

rack travel mm	:	0.85
Tolerance mm	: ±	0.55
Rated speed rpm	:	1130

rack travel mm	:	4.00
Rated speed rpm	:	990

LOW IDLE

control lever position degree	:	79.0
tolerance degree	: ±	4.0

control lever position degree	:	31.0
tolerance degree	: ±	4.0

Setting point w/out bumper spring

Rated speed rpm	:	250
rack travel mm	:	4.60

Testing:

Rated speed rpm	:	250
rack travel mm	:	5.10
Tolerance mm	: ±	0.10

rack travel mm	:	2.00
Rated speed rpm	:	410
Tolerance 1/min	: ±	30

TORQUE CONTROL

Rated speed rpm : 700
rack travel mm : 9.95
Tolerance mm : ± 0.05

ANEROID/ALTITUDE
COMPENSATOR TEST

SETTING

Rated speed rpm : 700
Pressure hPa : 1000
rack travel mm : 9.95
Tolerance mm : ± 0.05

MEASUREMENT

Pressure hPa : -
Rated speed rpm : 700
rack travel mm : 8.70
Tolerance mm : ± 0.10

Rated speed rpm : 700

Pressure hPa : 600
rack travel mm : 0.90
Tolerance mm : ± 0.15

Pressure hPa : 460
rack travel mm : 0.25
Tolerance mm : ± 0.05

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : -
Rated speed rpm : 700
Del. quantity
cm³/1000 strokes : 178.0
cm³/1000 strokes : ± 1.0
Check tolerance
cm³/1000S. : ± 4.0

BREAKAWAY

Rack travel in mm : 8.95
Rated speed rpm : 930
Tolerance 1/min : ± 5

STARTING FUEL DELIVERY

Rated speed rpm : 100

rack travel mm : 8.70
Tolerance mm : ± 0.50

LOW IDLE

Rated speed rpm : 250
Del. quantity
cm³/1000 strokes : 20.0
cm³/1000 strokes : ± 3.0
Check tolerance
cm³/1000S. : ± 6.0
Speed
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. : 8.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 05.11.96
Test oil : ISO 4113
Combination No. : 0 402 640 845
Injection pump
Pump designation : PE12P120A320LS7896
EP type number : 0 412 620 847
Governor
Governor design. : RQV350...1050PA1306
Governor no. : 0 421 814 179

Cust. part No. : 0270749102

Customer-spec. information
Customer : MB-NFZ
Motor : OM 444 LA
Power KW : 500.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1
Test oil inlet
temp. °C : 40
Tolerance °C : + 2.0
Overflow valve : 1 417 413 077
Inlet press. bar : 2.0
Overflow quantity
min. l/h : 170
Tolerance l/h : + 10.0
Test nozzle holde
assembly : 1 688 901 105
Opening pressure
bar : 208.5
Tolerance bar : + 1.5

Test lines : 1 680 750 075
Outside diameter : 6.0
x inside diameter : 3.0
x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : + 1.0
Prestroke mm : 5.25
Tolerance mm : + 0.05
Check
tolerance mm : + 0.10
Rack travel in mm : 20.50
Tolerance mm : + 0.50
Firing order : 12- 1- 5- 9- 8
 : - 3- 4- 11- 10
 : - 2- 6- 7
Phasing : 0-45-60-105-120
 : -165-180-225-240
 : -285-300-345
Tolerance : + 0.30
Check
tolerance °NW : + 0.50

BASIC SETTING

Rated speed rpm : 1050
Rack travel in mm : 15.10
Tolerance mm : + 0.05
Del. quantity
cm3/1000 strokes : 227.5
cm3/1000 strokes : + 1.0

Check tolerance
cm³/1000S. : + 4.0

Spreed
cm³/1000 strokes : 6.0

Check tolerance
cm³/1000S. : 10.0

Rated speed rpm : 350

Rack travel in mm : 6.20
Tolerance mm : + 0.10

Del. quantity
cm³/1000 strokes : 19.0
cm³/1000 strokes : + 3.0

Check tolerance
cm³/1000S. : + 6.0

Spreed
cm³/1000 strokes : 8.0

Check tolerance
cm³/1000S. : 12.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 350
guide sleeve
travel mm : 1.48
Tolerance mm : + 0.20

Rated speed rpm : 1107
guide sleeve
travel mm : 8.04
Tolerance mm : + 0.15

Rated speed rpm : 900
guide sleeve
travel mm : 5.69
Tolerance mm : + 0.25

Rated speed rpm : 580
guide sleeve
travel mm : 3.62
Tolerance mm : + 0.25

Rated speed rpm : 1204
guide sleeve
travel mm : 10.00
Tolerance mm : + 0.25

Rated speed rpm : 1300
guide sleeve
travel mm : 11.50
Tolerance mm : + 0.50

GUIDE SLEEVE POSITION

Rated speed rpm : 1165

Rack travel in mm : 14.10
Tolerance mm : + 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1050

Aneroid pressure
hPa : 1300

Del. quantity
cm³/1000 strokes : 227.5

cm³/1000 strokes : + 1.0
Check tolerance
cm³/1000S. : + 4.0

Spreed
cm³/1000 strokes : 6.0

Check tolerance
cm³/1000S. : 10.0

CONTROL LEVER

control lever
position degree : 118.0
tolerance degree : + 4.0

RATED SPEED

rack travel mm : 14.10
Rated speed rpm : 1095
Tolerance 1/min : + 5

rack travel mm : 4.00
Rated speed rpm : 1190
Tolerance 1/min : + 15

rack travel mm : 0.50
Tolerance mm : + 0.50
Rated speed rpm : 1300

LOW IDLE

control lever
position degree : 67.0
tolerance degree : + 4.0

Testing:

Rated speed rpm : 350
rack travel mm : 6.20

Tolerance mm : + 0.10
Rated speed rpm : 250
CRT mm min. : > 8.50
Rated speed rpm : 400

TORQUE CONTROL

Rated speed rpm : 1050
rack travel mm : 15.10
Tolerance mm : + 0.05

Rated speed rpm : 800
rack travel mm : 15.10
Tolerance mm : + 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

MEASUREMENT

Pressure hPa : -
Rated speed rpm : 500

Pressure hPa : 300
rack travel mm : 1.20
Tolerance mm : + 0.05

Pressure hPa : 600
rack travel mm : 3.85
Tolerance mm : + 0.15

START CUT-OUT

Rated speed rpm : > 210
Rated speed rpm : < 270

Check
speed 1/min : > 190
Check
speed 1/min : < 290

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1300
Rated speed rpm : 800
Del. quantity
cm³/1000 strokes : 226.0
cm³/1000 strokes : + 3.0
Check tolerance
cm³/1000S. : + 6.0

Spread
cm³/1000 strokes : 10.0
Check tolerance
cm³/1000S. : 15.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 134.0
cm³/1000 strokes : + 1.0
Check tolerance
cm³/1000S. : + 4.0
Spread
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

BREAKAWAY

Rack travel in mm : 14.10
Rated speed rpm : 1095
Tolerance 1/min : + 5

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 250.0
cm³/1000 strokes : + 10.0
Check tolerance
cm³/1000S. : + 14.0

LOW IDLE

Rated speed rpm : 350
Del. quantity
cm³/1000 strokes : 19.0
cm³/1000 strokes : + 3.0
Check tolerance
cm³/1000S. : + 6.0
Spread
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

End of test specification sheet



BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 04.11.96
Test oil : ISO 4113

Combination No. : 0 402 646 989

Injection pump
Pump designation : PE6P120A32ORS7230
: -10Y
EP type number : 0 412 626 898

Governor
Governor design. : RQV250...1000PA99OK
Governor no. : 0 421 815 274

Cust. part No. : 1250708/2

Customer-spec. information

Customer : DAF
Motor : WS 315 L
Power KW : 315.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 1.5
Tolerance bar : ± 0.1

Test nozzle holde
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0
x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 5.05
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 14.50
Tolerance mm : ± 0.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.30
Check
tolerance °NW : ± 0.50

Start of delivery mark

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 980

Rack travel in mm : 14.55
Tolerance mm : ± 0.05

Del. quantity
cm3/1000 strokes : 274.0

cm3/1000 strokes : ± 1.0

Check tolerance
 cm³/1000S. : + 4.0

 Spreed
 cm³/1000 strokes : 5.0

 Check tolerance
 cm³/1000S. : 9.0
 Rated speed rpm : 250

 Rack travel in mm : 5.20
 Tolerance mm : + 0.10
 Del. quantity
 cm³/1000 strokes : 17.0
 cm³/1000 strokes : + 3.0
 Check tolerance
 cm³/1000S. : + 6.0
 Spreed
 cm³/1000 strokes : 8.0
 Check tolerance
 cm³/1000S. : 12.0

(B) SETTING OF INJECTION PUMP
 WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 250
 guide sleeve
 travel mm : 1.53
 Tolerance mm : + 0.20

 Rated speed rpm : 1045
 guide sleeve
 travel mm : 9.82
 Tolerance mm : + 0.15

 Rated speed rpm : 689
 guide sleeve
 travel mm : 6.43
 Tolerance mm : + 0.25

 Rated speed rpm : 284
 guide sleeve
 travel mm : 2.27
 Tolerance mm : + 0.25

 Rated speed rpm : 334
 guide sleeve
 travel mm : 3.08
 Tolerance mm : + 0.25

 Rated speed rpm : 400
 guide sleeve
 travel mm : 3.92
 Tolerance mm : + 0.25

D20

Rated speed rpm : 1310
 guide sleeve
 travel mm : 13.50
 Tolerance mm : + 0.50

GUIDE SLEEVE POSITION

Rated speed rpm : 1130

 Rack travel in mm : 13.50
 Tolerance mm : + 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 980
 Aneroid pressure
 hPa : 1500
 Del. quantity
 cm³/1000 strokes : 274.0
 cm³/1000 strokes : + 1.0
 Check tolerance
 cm³/1000S. : + 4.0
 Spreed
 cm³/1000 strokes : 5.0
 Check tolerance
 cm³/1000S. : 9.0

CONTROL LEVER

control lever
 position degree : 120.0
 tolerance degree : + 4.0

RATED SPEED

rack travel mm : 13.55
 Rated speed rpm : 1032
 Tolerance 1/min : + 8

 rack travel mm : 4.00
 Rated speed rpm : 1150
 Tolerance 1/min : + 15

 rack travel mm : 0.70
 Tolerance mm : + 0.70
 Rated speed rpm : 1275

LOW IDLE

control lever
 position degree : 70.0
 tolerance degree : + 4.0

Testing:

Rated speed rpm : 250
rack travel mm : 5.20
Tolerance mm : ± 0.10

rack travel mm : 2.00
Rated speed rpm : 350
Tolerance 1/min : ± 20

Rated speed rpm : 150

CRT mm min. : > 7.00

TORQUE CONTROL

Rated speed rpm : 980
rack travel mm : 14.55
Tolerance mm : ± 0.05

Rated speed rpm : 600
rack travel mm : 13.30
Tolerance mm : ± 0.05

Rated speed rpm : 400
rack travel mm : 13.20
Tolerance mm : ± 0.10

Rated speed rpm : 800
rack travel mm : 14.20
Tolerance mm : ± 0.10

ANEROID/ALTITUDE
COMPENSATOR TEST

SETTING

Rated speed rpm : 980
Pressure hPa : 1500
rack travel mm : 14.55
Tolerance mm : ± 0.05

MEASUREMENT

Pressure hPa : -
Rated speed rpm : 980
rack travel mm : 9.10
Tolerance mm : ± 0.10

Rated speed rpm : 980

Pressure hPa : 760
rack travel mm : 13.15
Tolerance mm : ± 0.05

Pressure hPa : 350

rack travel mm : 10.40
Tolerance mm : ± 0.20

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1500
Rated speed rpm : 600
Del. quantity
cm³/1000 strokes : 286.0
cm³/1000 strokes : ± 2.0
Check tolerance
cm³/1000S. : ± 5.0
Spreed
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

Aneroid pressure
hPa : -
Rated speed rpm : 600
Del. quantity
cm³/1000 strokes : 172.0
cm³/1000 strokes : ± 1.0
Check tolerance
cm³/1000S. : ± 4.0

BREAKAWAY

Rack travel in mm : 13.55
Rated speed rpm : 1032
Tolerance 1/min : ± 8

LOW IDLE

Rated speed rpm : 250
Del. quantity
cm³/1000 strokes : 17.0
cm³/1000 strokes : ± 3.0
Check tolerance
cm³/1000S. : ± 6.0
Spreed
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

End of test specification sheet



BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 05.11.96
Test oil : ISO 4113

Combination No. : 0 402 648 788

Injection pump
Pump designation : PE8P120A320LS7897
EP type number : 0 412 628 915

Governor
Governor design. : RQV350...1050PA1307
Governor no. : 0 421 814 180

Cust. part No. :

Customer-spec. information
Customer : MB-NFZ
Motor : OM442 LA
Power KW : 370.0

TEST BENCH REQUIREMENTS

Inlet Line : 3.1

Test oil inlet temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 077

Inlet press. bar : 2.0
Tolerance bar : ± 0.1

Overflow quantity min. L/h : 110
Tolerance L/h : ± 10.0

Test nozzle holder assembly : 1 688 901 105

Opening pressure bar : 208.5
Tolerance bar : ± 1.5

D23

Test lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 2.5
x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant. per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 4.80
Tolerance mm : ± 0.05
Check tolerance mm : ± 0.10

Rack travel in mm : 20.50
Tolerance mm : ± 0.50

Firing order : 8- 7- 2- 6- 3
 : - 5- 4- 1

Phasing : 0-45-90-135-180
 : -225-270-315
Tolerance : ± 0.30
Check tolerance °NW : ± 0.50

Start of delivery mark

Tolerance : ± 0.10
Check tolerance °NW : ± 0.75

Barrel no. : 8

BASIC SETTING

Rated speed rpm : 1050

Rack travel in mm : 15.35
Tolerance mm : ± 0.05

Del. quantity cm ³ /1000 strokes	: 272.0
cm ³ /1000 strokes	: ± 1.0
Check tolerance cm ³ /1000S.	: ± 4.0
Spread cm ³ /1000 strokes	: 5.0
Check tolerance cm ³ /1000S.	: 9.0
Rated speed rpm	: 350

Rack travel in mm	: 5.10
Tolerance mm	: ± 0.10
Del. quantity cm ³ /1000 strokes	: 20.0
cm ³ /1000 strokes	: ± 3.0
Check tolerance cm ³ /1000S.	: ± 6.0
Spread cm ³ /1000 strokes	: 6.0
Check tolerance cm ³ /1000S.	: 10.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm	: 350
guide sleeve travel mm	: 1.48
Tolerance mm	: ± 0.20

Rated speed rpm	: 1108
guide sleeve travel mm	: 8.04
Tolerance mm	: ± 0.15

Rated speed rpm	: 900
guide sleeve travel mm	: 5.69
Tolerance mm	: ± 0.25

Rated speed rpm	: 570
guide sleeve travel mm	: 3.57
Tolerance mm	: ± 0.25

Rated speed rpm	: 1204
guide sleeve travel mm	: 10.00

Tolerance mm	: ± 0.25
Rated speed rpm	: 1300
guide sleeve travel mm	: 11.50
Tolerance mm	: ± 0.50

GUIDE SLEEVE POSITION

Rated speed rpm	: 1160
Rack travel in mm	: 14.30
Tolerance mm	: ± 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm	: 1050
Aneroid pressure hPa	: 1800
Del. quantity cm ³ /1000 strokes	: 272.0
cm ³ /1000 strokes	: ± 1.0
Check tolerance cm ³ /1000S.	: ± 4.0
Spread cm ³ /1000 strokes	: 5.0
Check tolerance cm ³ /1000S.	: 9.0

CONTROL LEVER

control lever position degree	: 121.0
tolerance degree	: ± 4.0

RATED SPEED

rack travel mm	: 14.30
Rated speed rpm	: 1095
Tolerance 1/min	: ± 5

rack travel mm	: 4.00
Rated speed rpm	: 1195
Tolerance 1/min	: ± 15

rack travel mm	: 0.50
Tolerance mm	: ± 0.50
Rated speed rpm	: 1240

LOW IDLE

control lever position degree	: 67.0
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tolerance degree : + 4.0

Testing:

Rated speed rpm : 350
rack travel mm : 5.10
Tolerance mm : + 0.10

Rated speed rpm : 250

CRT mm min. : > 7.50

Rated speed rpm : 450

TORQUE CONTROL

Rated speed rpm : 1050
rack travel mm : 15.35
Tolerance mm : + 0.05

Rated speed rpm : 800
rack travel mm : 15.35
Tolerance mm : + 0.10

ANEROID/ALTITUDE
COMPENSATOR TEST

MEASUREMENT

Pressure hPa : -
Rated speed rpm : 500

Pressure hPa : 290
rack travel mm : 0.75
Tolerance mm : + 0.05

Pressure hPa : 660
rack travel mm : 3.90
Tolerance mm : + 0.20

START CUT-OUT

Rated speed rpm : > 210
Rated speed rpm : < 270

Check
speed 1/min : > 190
Check
speed 1/min : < 290

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1800

Rated speed rpm : 800
Del. quantity
cm³/1000 strokes : 274.0
cm³/1000 strokes : + 3.0
Check tolerance
cm³/1000S. : + 6.0

Aneroid pressure
hPa : 1800
Rated speed rpm : 1050
Del. quantity
cm³/1000 strokes : 156.0
cm³/1000 strokes : + 2.0
Check tolerance
cm³/1000S. : + 5.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 130.0
cm³/1000 strokes : + 1.0
Check tolerance
cm³/1000S. : + 4.0

BREAKAWAY

Rack travel in mm : 14.30
Rated speed rpm : 1095
Tolerance 1/min : + 5

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 270.0
cm³/1000 strokes : + 10.0
Check tolerance
cm³/1000S. : + 14.0

LOW IDLE

Rated speed rpm : 350
Del. quantity
cm³/1000 strokes : 20.0
cm³/1000 strokes : + 3.0
Check tolerance
cm³/1000S. : + 6.0
Speed
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 10.0

End of test specification sheet



BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 05.11.96
Test oil : ISO 4113
Combination No. : 0 402 648 978
Injection pump
Pump designation : PE8P120A320LS7880
EP type number : 0 412 628 889
Governor
Governor design. : RQV350...1050PA1180
Governor no. : 0 421 814 109

Cust. part No. : 0250742502

Customer-spec. information
Customer : MB-NFZ
Motor : OM442 LA
Power KW : 405.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1
Test oil inlet temp. °C : 40
Tolerance °C : +- 2.0
Overflow valve : 1 417 413 025
Inlet press. bar : 1.5
Tolerance bar : +- 0.1
Tolerance l/h : +- 10.0
Test nozzle holder assembly : 1 638 901 105
Opening pressure bar : 208.5
Tolerance bar : +- 1.5
Test lines : 1 680 750 075

Outside diameter : 8.0
x inside diameter : 3.0
x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : +- 1.0
Prestroke mm : 4.75
Tolerance mm : +- 0.05
Check tolerance mm : +- 0.10
Rack travel in mm : 20.50
Tolerance mm : +- 0.50
Firing order : 8- 7- 2- 6- 3
 : - 5- 4- 1
Phasing : 0-45-90-135-180
 : -225-270-315
Tolerance : +- 0.30
Check tolerance °NW : +- 0.50
Start of delivery mark
Tolerance : +- 0.10
Check tolerance °NW : +- 0.75
Barrel no. : 8

BASIC SETTING

Rated speed rpm : 1050
Rack travel in mm : 15.00

Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 282.0

cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : ± 4.0

Spread
cm³/1000 strokes : 6.0

Check tolerance
cm³/1000S. : 9.0

Rated speed rpm : 350

Rack travel in mm : 5.70
Tolerance mm : ± 0.10

Del. quantity
cm³/1000 strokes : 19.0
cm³/1000 strokes : ± 3.0

Check tolerance
cm³/1000S. : ± 6.0

Spread
cm³/1000 strokes : 6.0

Check tolerance
cm³/1000S. : 10.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 350
guide sleeve
travel mm : 2.14
Tolerance mm : ± 0.10

Rated speed rpm : 1111
guide sleeve
travel mm : 8.55
Tolerance mm : ± 0.20

Rated speed rpm : 558
guide sleeve
travel mm : 4.53
Tolerance mm : ± 0.25

Rated speed rpm : 608
guide sleeve
travel mm : 5.03
Tolerance mm : ± 0.25

Rated speed rpm : 820

guide sleeve
travel mm : 6.13
Tolerance mm : ± 0.25

Rated speed rpm : 1183
guide sleeve
travel mm : 10.00
Tolerance mm : ± 0.25

GUIDE SLEEVE POSITION

Rated speed rpm : 1120

Rack travel in mm : 14.00
Tolerance mm : ± 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1050
Aneroid pressure
hPa : 1300

Del. quantity
cm³/1000 strokes : 282.0
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : ± 4.0

Spread
cm³/1000 strokes : 6.0

Check tolerance
cm³/1000S. : 9.0

CONTROL LEVER

control lever
position degree : 123.0
tolerance degree : ± 4.0

RATED SPEED

rack travel mm : 14.00
Rated speed rpm : 1098
Tolerance 1/min : ± 8

rack travel mm : 4.00
Rated speed rpm : 1185
Tolerance 1/min : ± 15

rack travel mm : 0.75
Tolerance mm : ± 0.75
Rated speed rpm : 1250

LOW IDLE

control lever
position degree : 87.0
tolerance degree : +- 4.0

Testing:

Rated speed rpm : 350
rack travel mm : 5.70
Tolerance mm : +- 0.10

Rated speed rpm : 250

CRT mm min. : > 8.90

Rated speed rpm : 400

TORQUE CONTROL

Rated speed rpm : 1050
rack travel mm : 15.00
Tolerance mm : +- 0.05

Rated speed rpm : 600
rack travel mm : 15.00
Tolerance mm : +- 0.05

ANEROID/ALTITUDE
COMPENSATOR TEST

MEASUREMENT

Pressure hPa : -
Rated speed rpm : 500

Pressure hPa : 500
rack travel mm : 1.40
Tolerance mm : +- 0.05

Pressure hPa : 1000
rack travel mm : 6.00
Tolerance mm : +- 0.20

START CUT-OUT

Rated speed rpm : > 210
Rated speed rpm : < 270

Check
speed 1/min : > 190
Check
speed 1/min : < 290

FUEL DELIVERY CHARACTERISTICS

E01

Aneroid pressure
hPa : 1300
Rated speed rpm : 600
Del. quantity
cm³/1000 strokes : 298.5
cm³/1000 strokes : +- 2.0
Check tolerance
cm³/1000s. : +- 5.0
Spreed
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000s. : 12.0

Aneroid pressure
hPa : 1300
Rated speed rpm : 1050
Del. quantity
cm³/1000 strokes : 225.0
cm³/1000 strokes : +- 2.0
Check tolerance
cm³/1000s. : +- 5.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 132.0
cm³/1000 strokes : +- 1.0
Check tolerance
cm³/1000s. : +- 4.0
Spreed
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000s. : 12.0

BREAKAWAY

Rack travel in mm : 14.00
Rated speed rpm : 1098
Tolerance 1/min : +- 8

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 280.0
cm³/1000 strokes : +- 10.0
Check tolerance
cm³/1000s. : +- 14.0

LOW IDLE

Rated speed rpm : 350
Del. quantity
cm³/1000 strokes : 19.0
cm³/1000 strokes : ± 3.0
Check tolerance
cm³/1000S. : ± 6.0
Spreed
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 10.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 05.11.96
Test oil : ISO 4113

Combination No. : 0 402 676 832

Injection pump
Pump designation : PE6P120A320LS7898
EP type number : 0 412 626 957

Governor
Governor design. : RSV350...1000POA648
Governor no. : 0 421 833 565

Cust. part No. : 0270748202

Customer-spec. information
Customer : MB-NFZ
Motor : OM441 A
Power KW : 170.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 1.5
Tolerance bar : ± 0.1

Overflow quantity
min. l/h : 120
Tolerance l/h : ± 10.0

Test nozzle holder
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 5.25
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 20.50
Tolerance mm : ± 0.50

Firing order : 6- 3- 5- 2- 4-
: 1

Phasing : 0-60-120-180-240
: -300

Tolerance : ± 0.30
Check
tolerance *NW : ± 0.50

Start of delivery mark

Tolerance : ± 0.10
Check
tolerance *NW : ± 0.75

Barrel no. : 6

BASIC SETTING

Rated speed rpm : 980

Rack travel in mm : 11.75

Tolerance mm : \pm 0.05

Del. quantity
cm³/1000 strokes : 172.0

cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000S. : \pm 4.0

Spreed
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

Rated speed rpm : 350

Rack travel in mm : 5.00
Tolerance mm : \pm 0.10
Del. quantity
cm³/1000 strokes : 19.0
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0
Spreed
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 10.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE POSITION

Rated speed rpm : 800

Rack travel in mm : 0.50
Tolerance mm : \pm 0.20

governor spring
pre-tension
click setting x : 4.50

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 980
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 172.0
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 4.0
Spreed

cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. : 9.0

CONTROL LEVER

control lever
position degree : 93.0
tolerance degree : \pm 4.0

ASSEMBLY GOVERNOR SETTING

Rated speed rpm : 1030
rack travel mm : 10.70

Rated speed rpm : 1105
Tolerance 1/min : \pm 4
rack travel mm : 4.00

rack travel mm : 0.85
Tolerance mm : \pm 0.55
Rated speed rpm : 1300

Rated speed rpm : 1031
rack travel mm : 10.70

Rated speed rpm : 1106
Tolerance 1/min : \pm 4
rack travel mm : 4.00

rack travel mm : 0.85
Tolerance mm : \pm 0.55
Rated speed rpm : 1300

Rated speed rpm : 1032
rack travel mm : 10.70

Rated speed rpm : 1107
Tolerance 1/min : \pm 4
rack travel mm : 4.00

rack travel mm : 0.85
Tolerance mm : \pm 0.55
Rated speed rpm : 1300

Rated speed rpm : 1033
rack travel mm : 10.70

Rated speed rpm : 1108
Tolerance 1/min : \pm 4
rack travel mm : 4.00

rack travel mm : 0.85
Tolerance mm : \pm 0.55
Rated speed rpm : 1300

Rated speed rpm : 1034

rack travel mm : 10.70
 Rated speed rpm : 1109
 Tolerance 1/min : +- 4
 rack travel mm : 4.00

 rack travel mm : 0.85
 Tolerance mm : +- 0.55
 Rated speed rpm : 1300

 Rated speed rpm : 1035
 rack travel mm : 10.70

 Rated speed rpm : 1110
 Tolerance 1/min : +- 4
 rack travel mm : 4.00

 rack travel mm : 0.85
 Tolerance mm : +- 0.55
 Rated speed rpm : 1300

LOW IDLE

control lever
 position degree : 73.0
 tolerance degree : +- 4.0

Testing:

Rated speed rpm : 350
 rack travel mm : 5.00
 Tolerance mm : +- 0.10

rack travel mm : 2.00
 Rated speed rpm : 405
 Tolerance 1/min : +- 30

Rated speed rpm : 100

 CRT mm min. : > 19.50

SET IDLE AUXILIARY SPRING

rack travel mm : 2.00

TORQUE CONTROL

Rated speed rpm : 980
 rack travel mm : 11.75
 Tolerance mm : +- 0.05

Rated speed rpm : 600
 rack travel mm : 11.75
 Tolerance mm : +- 0.05

Rated speed rpm : 400
 rack travel mm : 10.95

E05

Tolerance mm : +- 0.15

ANEROID/ALTITUDE
COMPENSATOR TEST

SETTING

Rated speed rpm : 400
 Pressure hPa : 1000
 rack travel mm : 11.75
 Tolerance mm : +- 0.05

MEASUREMENT

Pressure hPa : -
 Rated speed rpm : 400
 rack travel mm : 10.05
 Tolerance mm : +- 0.15

Rated speed rpm : 400

Pressure hPa : 360
 rack travel mm : 10.60
 Tolerance mm : +- 0.15

Pressure hPa : 400
 rack travel mm : 10.95
 Tolerance mm : +- 0.15

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
 hPa : 1000
 Rated speed rpm : 600
 Del. quantity
 cm³/1000 strokes : 170.0
 cm³/1000 strokes : +- 3.0
 Check tolerance
 cm³/1000S. : +- 6.0
 Spreed
 cm³/1000 strokes : 8.0
 Check tolerance
 cm³/1000S. : 12.0

Aneroid pressure
 hPa : 400
 Rated speed rpm : 400
 Del. quantity
 cm³/1000 strokes : 125.0
 cm³/1000 strokes : +- 1.0
 Check tolerance
 cm³/1000S. : +- 4.0
 Spreed
 cm³/1000 strokes : 8.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 132.0
cm³/1000 strokes : +- 1.0
Check tolerance
cm³/1000S. : +- 4.0
Spreed
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 180.0
cm³/1000 strokes : +- 10.0
Check tolerance
cm³/1000S. : +- 14.0

LOW IDLE

Rated speed rpm : 350
Del. quantity
cm³/1000 strokes : 19.0
cm³/1000 strokes : +- 3.0
Check tolerance
cm³/1000S. : +- 6.0
Spreed
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 10.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 05.11.96
Test oil : ISO 4113

Combination No. : 0 402 678 831

Injection pump
Pump designation : PE8P120A320LS7901
EP type number : 0 412 628 918

Governor
Governor design. : RSV350...1050POA651
Governor no. : 0 412 833 568

Cust. part No. : 0270745602

Customer-spec. information

Customer : MB-NFZ
Motor : OM442LA
Power KW : 297.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 1.5
Tolerance bar : ± 0.1

Overflow quantity min. l/h : 110
Tolerance l/h : ± 10.0

Test nozzle holder assembly : 1 688 901 105

Opening pressure bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 5.25
Tolerance mm : ± 0.05
Check tolerance mm : ± 0.10

Rack travel in mm : 20.50
Tolerance mm : ± 0.50

Firing order : 8- 7- 2- 6- 3
 : - 5- 4- 1

Phasing : 0-45-90-135-180
 : -225-270-315
Tolerance : ± 0.30
Check tolerance °NW : ± 0.50

BASIC SETTING

Rated speed rpm : 1050

Rack travel in mm : 13.80
Tolerance mm : ± 0.05

Del. quantity cm³/1000 strokes : 213.0

cm³/1000 strokes : ± 1.5

Check tolerance
cm³/1000S. : +- 4.5

Spreed
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

Rated speed rpm : 350

Rack travel in mm : 5.50
Tolerance mm : +- 0.10

Del. quantity
cm³/1000 strokes : 19.0
cm³/1000 strokes : +- 3.0

Check tolerance
cm³/1000S. : +- 6.0

Spreed
cm³/1000 strokes : 8.0

Check tolerance
cm³/1000S. : 12.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE POSITION

Rated speed rpm : 800

Rack travel in mm : 0.50
Tolerance mm : +- 0.20

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1050

Aneroid pressure
hPa : 1200

Del. quantity
cm³/1000 strokes : 213.0
cm³/1000 strokes : +- 1.5

Check tolerance
cm³/1000S. : +- 4.5

Spreed
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

CONTROL LEVER

control lever
position degree : 90.0
tolerance degree : +- 4.0

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RATED SPEED

rack travel mm : 12.80
Rated speed rpm : 1075
Tolerance 1/min : +- 5

rack travel mm : 4.00
Rated speed rpm : 1145
Tolerance 1/min : +- 15

rack travel mm : 0.85
Tolerance mm : +- 0.55
Rated speed rpm : 1400

LOW IDLE

control lever
position degree : 70.0
tolerance degree : +- 4.0

Testing:

Rated speed rpm : 350
rack travel mm : 5.50
Tolerance mm : +- 0.10

rack travel mm : 2.00
Rated speed rpm : 400
Tolerance 1/min : +- 30

Rated speed rpm : 100

CRT mm min. : > 19.50

SET IDLE AUXILIARY SPRING

rack travel mm : 2.00

TORQUE CONTROL

Rated speed rpm : 1050
rack travel mm : 13.80
Tolerance mm : +- 0.05

Rated speed rpm : 600
rack travel mm : 14.00
Tolerance mm : +- 0.10

ANEROID/ALTITUDE
COMPENSATOR TEST

MEASUREMENT

Pressure hPa : -
Rated speed rpm : 500

Pressure hPa : 250
rack travel mm : 0.35
Tolerance mm : ± 0.05

Pressure hPa : 800
rack travel mm : 3.25
Tolerance mm : ± 0.15

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1200
Rated speed rpm : 600
Del. quantity
cm³/1000 strokes : 221.0
cm³/1000 strokes : ± 1.5
Check tolerance
cm³/1000S. : ± 4.5
Speed
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 143.0
cm³/1000 strokes : ± 1.0
Check tolerance
cm³/1000S. : ± 4.0
Speed
cm³/1000 strokes : 8.0

BREAKAWAY

Rack travel in mm : 12.80
Rated speed rpm : 1075
Tolerance 1/min : ± 5

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 250.0
cm³/1000 strokes : ± 15.0
Check tolerance
cm³/1000S. : ± 19.0

LOW IDLE

Rated speed rpm : 350
Del. quantity
cm³/1000 strokes : 19.0
cm³/1000 strokes : ± 3.0
Check tolerance
cm³/1000S. : ± 6.0
Speed
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 05.11.96
Test oil : ISO 4113

Combination No. : 0 402 678 834

Injection pump
Pump designation : PE8P120A320LS7903
EP type number : 0 412 628 920

Governor
Governor design. : RSV600...950POA663
Governor no. : 0 421 833 580

Cust. part No. : 027 074 4602

Customer-spec. information

Customer : MB-NFZ
Motor : OM442A
Power KW : 250.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 1.5

Overflow quantity
min. l/h : 170
Tolerance l/h : ± 20.0

Test nozzle holde
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 2.5
x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 5.25
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 20.50
Tolerance mm : ± 0.50

Firing order : 8- 7- 2- 6- 3
 : - 5- 4- 1

Phasing : 0-45-90-135-180
 : -225-270-315

Tolerance : ± 0.30
Check
tolerance *NW : ± 0.50

Start of delivery mark

Tolerance : ± 0.10
Check
tolerance *NW : ± 0.50

Barrel no. : 8

BASIC SETTING

Rated speed rpm : 930

Rack travel in mm : 13.40
Tolerance mm : + 0.05

Del. quantity
cm³/1000 strokes : 201.0

cm³/1000 strokes : + 1.0

Check tolerance
cm³/1000S. : + 4.0

Spreed
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

Rated speed rpm : 600

Rack travel in mm : 4.30
Tolerance mm : + 0.10

Del. quantity
cm³/1000 strokes : 18.0

cm³/1000 strokes : + 3.0

Check tolerance
cm³/1000S. : + 6.0

Spreed
cm³/1000 strokes : 8.0

Check tolerance
cm³/1000S. : 12.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE POSITION

Rated speed rpm : 800

Rack travel in mm : 0.50
Tolerance mm : + 0.20

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 930

Aneroid pressure
hPa : 1000

Del. quantity
cm³/1000 strokes : 201.0

cm³/1000 strokes : + 1.0

Check tolerance
cm³/1000S. : + 4.0

Spreed
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

CONTROL LEVER

control lever
position degree : 88.0
tolerance degree : + 4.0

ASSEMBLY GOVERNOR SETTING

Rated speed rpm : 970
rack travel mm : 12.40

Rated speed rpm : 1035
Tolerance 1/min : + 4
rack travel mm : 4.00

rack travel mm : 0.85
Tolerance mm : + 0.55
Rated speed rpm : 1100

Rated speed rpm : 971
rack travel mm : 12.40

Rated speed rpm : 1036
Tolerance 1/min : + 4
rack travel mm : 4.00

rack travel mm : 0.85
Tolerance mm : + 0.55

Rated speed rpm : 972
rack travel mm : 12.40

Rated speed rpm : 1037
Tolerance 1/min : + 4
rack travel mm : 4.00

rack travel mm : 0.85
Tolerance mm : + 0.55
Rated speed rpm : 1100

Rated speed rpm : 973
rack travel mm : 12.40

Rated speed rpm : 1038
Tolerance 1/min : + 4
rack travel mm : 4.00

rack travel mm : 0.85
Tolerance mm : + 0.55

Rated speed rpm : 974
rack travel mm : 12.40

Rated speed rpm : 1039

Tolerance 1/min : + 4
 rack travel mm : 4.00

 rack travel mm : 0.85
 Tolerance mm : + 0.55
 Rated speed rpm : 1100

 Rated speed rpm : 975
 rack travel mm : 12.40

 Rated speed rpm : 1040
 Tolerance 1/min : + 4
 rack travel mm : 4.00

 rack travel mm : 0.85
 Tolerance mm : + 0.55

LOW IDLE

control lever
 position degree : 74.0
 tolerance degree : + 4.0

Testing:

Rated speed rpm : 600
 rack travel mm : 4.30
 Tolerance mm : + 0.10

 rack travel mm : 2.00
 Rated speed rpm : 630
 Tolerance 1/min : + 30

SET IDLE AUXILIARY SPRING

rack travel mm : 2.00

TORQUE CONTROL

Rated speed rpm : 930
 rack travel mm : 13.40
 Tolerance mm : + 0.05

 Rated speed rpm : 600
 rack travel mm : 13.70
 Tolerance mm : + 0.10

ANEROID/ALTITUDE
COMPENSATOR TEST

SETTING

Rated speed rpm : 500
 Pressure hPa : -

MEASUREMENT

Pressure hPa : 470
 Rated speed rpm : 500
 rack travel mm : 0.70
 Tolerance mm : + 0.05

 Rated speed rpm : 500

 Pressure hPa : 630
 rack travel mm : 1.75
 Tolerance mm : + 0.15

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
 hPa : 1000
 Rated speed rpm : 600
 Del. quantity
 cm³/1000 strokes : 208.0
 cm³/1000 strokes : + 2.0
 Check tolerance
 cm³/1000S. : + 5.0
 Spreed
 cm³/1000 strokes : 8.0
 Check tolerance
 cm³/1000S. : 12.0

Aneroid pressure
 hPa : 1000
 Rated speed rpm : 500
 Del. quantity
 cm³/1000 strokes : 142.0
 cm³/1000 strokes : + 1.0
 Check tolerance
 cm³/1000S. : + 4.0
 Spreed
 cm³/1000 strokes : 8.0
 Check tolerance
 cm³/1000S. : 12.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
 Del. quantity
 cm³/1000 strokes : 190.0
 cm³/1000 strokes : + 10.0
 Check tolerance
 cm³/1000S. : + 14.0

LOW IDLE

Rated speed rpm : 600
Del. quantity
cm³/1000 strokes : 18.0
cm³/1000 strokes : ± 3.0
Check tolerance
cm³/1000S. : ± 6.0
Spreed
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 06.11.96
Test oil : ISO 4113

Combination No. : 0 402 736 862AA

Injection pump
Pump designation : PES6P110A120RS7214
EP type number : 0 412 716 805

Governor
Governor design. : RQV350...1200PA964
 : -30K
Governor no. : 0 421 815 432

Cust. part No. : 3282470

Customer-spec. information
Customer : CUMMINS
Motor : 6CTA-A
Power KW : 213.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 1.5

Overflow quantity
min. l/h : 120
Tolerance l/h : ± 5.0

Test nozzle holder
assembly : 1 688 901 101

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test Lines : 1 680 750 008
Outside diameter : 6.0
x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 23.0
Tolerance bar : ± 1.0

Prestroke mm : 4.40
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
 : 4

Phasing : 0-60-120-180-240
 : -300
Tolerance : ± 0.30
Check
tolerance °NW : ± 0.50

Start of delivery blocking

°NW after s.o.d. : 6.00
Tolerance : ± 0.10
Check
tolerance °NW : ± 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 900

Rack travel in mm	:	13.90
Tolerance mm	:	+ 0.05
<hr/>		
Del. quantity		
cm ³ /1000 strokes	:	186.0
<hr/>		
cm ³ /1000 strokes	:	+ 1.0
<hr/>		
Check tolerance		
cm ³ /1000S.	:	+ 4.0
<hr/>		
Spreed		
cm ³ /1000 strokes	:	5.0
<hr/>		
Check tolerance		
cm ³ /1000S.	:	9.0
<hr/>		
Rated speed rpm	:	300
<hr/>		
Rack travel in mm	:	6.50
Tolerance mm	:	+ 0.10
Del. quantity		
cm ³ /1000 strokes	:	43.0
cm ³ /1000 strokes	:	+ 3.0
Check tolerance		
cm ³ /1000S.	:	+ 5.0
Spreed		
cm ³ /1000 strokes	:	8.0
Check tolerance		
cm ³ /1000S.	:	12.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm	:	300
guide sleeve		
travel mm	:	1.76
Tolerance mm	:	+ 0.25
<hr/>		
Rated speed rpm	:	1269
guide sleeve		
travel mm	:	9.75
Tolerance mm	:	+ 0.25
<hr/>		
Rated speed rpm	:	829
guide sleeve		
travel mm	:	6.79
Tolerance mm	:	+ 0.25
<hr/>		
Rated speed rpm	:	322
guide sleeve		
travel mm	:	1.98
Tolerance mm	:	+ 0.25

Rated speed rpm	:	372
guide sleeve		
travel mm	:	2.75
Tolerance mm	:	+ 0.25
<hr/>		
Rated speed rpm	:	460
guide sleeve		
travel mm	:	3.76
Tolerance mm	:	+ 0.25
<hr/>		
Rated speed rpm	:	1630
guide sleeve		
travel mm	:	13.50
Tolerance mm	:	+ 0.50

GUIDE SLEEVE POSITION

Rated speed rpm	:	1400
<hr/>		
Rack travel in mm	:	12.90
Tolerance mm	:	+ 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm	:	900
Aneroid pressure		
hPa	:	1000
Del. quantity		
cm ³ /1000 strokes	:	186.0
cm ³ /1000 strokes	:	+ 1.0
Check tolerance		
cm ³ /1000S.	:	+ 4.0
Spreed		
cm ³ /1000 strokes	:	5.0
Check tolerance		
cm ³ /1000S.	:	9.0

CONTROL LEVER

control lever		
position degree	:	60.0
tolerance degree	:	+ 4.0
<hr/>		
control lever		
position degree	:	112.0
tolerance degree	:	+ 4.0

RATED SPEED

rack travel mm	:	13.65
Rated speed rpm	:	1150
Tolerance 1/min	:	+ 5
<hr/>		
rack travel mm	:	4.00
Rated speed rpm	:	1360
Tolerance 1/min	:	+ 15

rack travel mm : 0.50
Tolerance mm : ± 0.50
Rated speed rpm : 1500

LOW IDLE

control lever
position degree : 66.0
tolerance degree : ± 4.0

control lever
position degree : 14.0
tolerance degree : ± 4.0

Testing:

Rated speed rpm : 300
rack travel mm : 6.50
Tolerance mm : ± 0.10

Rated speed rpm : 200

CRT mm min. : > 7.65

Rated speed rpm : 423

TORQUE CONTROL

Rated speed rpm : 900
rack travel mm : 13.90
Tolerance mm : ± 0.05

Rated speed rpm : 700
rack travel mm : 12.90
Tolerance mm : ± 0.35

Rated speed rpm : 1100
rack travel mm : 14.60
Tolerance mm : ± 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 1100
Pressure hPa : 1200
rack travel mm : 14.60
Tolerance mm : ± 0.05

MEASUREMENT

Pressure hPa : -

Rated speed rpm : 1100
rack travel mm : 8.50
Tolerance mm : ± 0.20

Rated speed rpm : 1100

Pressure hPa : 675
rack travel mm : 14.30
Tolerance mm : ± 0.20

Pressure hPa : 340
rack travel mm : 10.40
Tolerance mm : ± 0.05

START CUT-OUT

Rated speed rpm : > 100
Rated speed rpm : < 220

Check
speed 1/min : > 80
Check
speed 1/min : < 240

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1000
Rated speed rpm : 700
Del. quantity
cm³/1000 strokes : 180.0
cm³/1000 strokes : ± 3.0
Check tolerance
cm³/1000S. : ± 6.0
Spreed
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

Aneroid pressure
hPa : -
Rated speed rpm : 1100
Del. quantity
cm³/1000 strokes : 185.0
cm³/1000 strokes : ± 3.0
Check tolerance
cm³/1000S. : ± 6.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 104.0
cm³/1000 strokes : ± 1.0
Check tolerance
cm³/1000S. : ± 4.0

BREAKAWAY

Rack travel in mm : 13.65
Rated speed rpm : 1150
Tolerance 1/min : \pm 5

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 11.20
Del. quantity
cm³/1000 strokes : 155.0
cm³/1000 strokes : \pm 20.0
Check tolerance
cm³/1000S. : \pm 25.0

LOW IDLE

Rated speed rpm : 300
Del. quantity
cm³/1000 strokes : 43.0
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 5.0
Spreed
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 31.10.96
Test oil : ISO 4113

Combination No. : 0 402 746 605

Injection pump
Pump designation : PES6P120A320RS7324
EP type number : 0 412 726 905

Governor
Governor design. : RQV300...920/1200PA1
: 260
Governor no. : 0 421 814 170

Cust. part No. : 51.11103-7461

Customer-spec. information
Customer : MAN
Motor : D0826LF11/LFL03
Power KW : 162.0

TEST BENCH REQUIREMENTS

Inlet line : 4.2

Test oil inlet temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 2 417 413 087

Inlet press. bar : 3.0
Tolerance bar : + 0.1

Overflow quantity min. l/h : 105
Tolerance l/h : + 10.0

Test nozzle holder assembly : 1 688 901 103

Opening pressure bar : 207.0
Tolerance bar : + 3.0

Test lines : 1 680 750 008
Outside diameter : 6.0
x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : + 1.0

Prestroke mm : 5.15
Tolerance mm : + 0.05
Check tolerance mm : + 0.10

Rack travel in mm : 12.00
Tolerance mm : + 0.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : + 0.30
Check tolerance °NW : + 0.50

Start of delivery blocking
Tolerance : + 0.10
Check tolerance °NW : + 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 700

Rack travel in mm : 5.00

Tolerance mm : + 0.10

Del. quantity
cm³/1000 strokes : 70.0

cm³/1000 strokes : + 8.0

Check tolerance
cm³/1000S. : + 11.0

Spreed

cm³/1000 strokes : 3.5

Check tolerance
cm³/1000S. : 9.0

Rated speed rpm : 1000

Rack travel in mm : 12.45
Tolerance mm : + 0.05

Del. quantity
cm³/1000 strokes : 202.0

cm³/1000 strokes : + 1.0

Check tolerance
cm³/1000S. : + 4.0

Spreed
cm³/1000 strokes : 8.0

Check tolerance
cm³/1000S. : 12.0

Rated speed rpm : 300

Rack travel in mm : 5.70
Tolerance mm : + 0.10
Del. quantity
cm³/1000 strokes : 36.0
cm³/1000 strokes : + 3.0
Check tolerance
cm³/1000S. : + 6.0
Spreed
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 14.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 300

E19

guide sleeve
travel mm : 1.64
Tolerance mm : + 0.20

Rated speed rpm : 1256
guide sleeve
travel mm : 10.36
Tolerance mm : - 0.15

Rated speed rpm : 1238
guide sleeve
travel mm : 10.09
Tolerance mm : + 0.25

Rated speed rpm : 660
guide sleeve
travel mm : 5.62
Tolerance mm : + 0.25

Rated speed rpm : 1460
guide sleeve
travel mm : 13.50
Tolerance mm : + 0.50

GUIDE SLEEVE POSITION

Rated speed rpm : 1330

Rack travel in mm : 11.45
Tolerance mm : + 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1000
Aneroid pressure
hPa : 1500
Del. quantity
cm³/1000 strokes : 202.0
cm³/1000 strokes : + 1.0
Check tolerance
cm³/1000S. : + 4.0
Spreed
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

CONTROL LEVER

control lever
position degree : 302.0
tolerance degree : + 4.0

RATED SPEED

rack travel mm : 11.45
Rated speed rpm : 1245

Tolerance 1/min : + 5
rack travel mm : 4.00
Rated speed rpm : 1330
Tolerance 1/min : + 15

rack travel mm : 0.25
Tolerance mm : + 0.25
Rated speed rpm : 1500

LOW IDLE

control lever
position degree : 261.0
tolerance degree : + 4.0

Testing:

Rated speed rpm : 300
rack travel mm : 5.70
Tolerance mm : + 0.10

Rated speed rpm : 200

CRT mm min. : > 8.40

Rated speed rpm : 360

TORQUE CONTROL

Rated speed rpm : 1000
rack travel mm : 12.45
Tolerance mm : + 0.05

Rated speed rpm : 1200
rack travel mm : 12.45
Tolerance mm : + 0.10

Rated speed rpm : 750
rack travel mm : 12.45
Tolerance mm : + 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 1500
rack travel mm : 12.45
Tolerance mm : + 0.05

MEASUREMENT

Pressure hPa : -
Rated speed rpm : 500
rack travel mm : 8.10
Tolerance mm : + 0.20

Rated speed rpm : 500

Pressure hPa : 140
rack travel mm : 8.45
Tolerance mm : + 0.05

Pressure hPa : 700
rack travel mm : 11.50
Tolerance mm : + 0.15

START CUT-OUT

Rated speed rpm : > 220
Rated speed rpm : < 250

Check
speed 1/min : > 200
Check
speed 1/min : < 260

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1500
Rated speed rpm : 1200
Del. quantity
cm³/1000 strokes : 199.0
cm³/1000 strokes : + 3.0
Check tolerance
cm³/1000S. : + 6.0

Aneroid pressure
hPa : 1500
Rated speed rpm : 750
Del. quantity
cm³/1000 strokes : 207.0
cm³/1000 strokes : + 3.0
Check tolerance
cm³/1000S. : + 6.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 126.0
cm³/1000 strokes : + 1.0
Check tolerance
cm³/1000S. : + 4.0

BREAKAWAY

Rack travel in mm : 11.45
Rated speed rpm : 1245
Tolerance 1/min : + 5

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 189.0
cm³/1000 strokes : + 15.0
Check tolerance
cm³/1000S. : + 19.0

LOW IDLE

Rated speed rpm : 300
Del. quantity
cm³/1000 strokes : 36.0
cm³/1000 strokes : + 3.0
Check tolerance
cm³/1000S. : + 6.0
Spreed
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 14.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 04.11.96
Test oil : ISO 4113
Combination No. : 0 402 796 814
Injection pump
Pump designation : PES6P120A72ORS7367
EP type number : 0 412 726 932
Governor
Governor design. : RE30
Governor no. : 0 421 890 026

Cust. part No. :

Customer-spec. information
Customer : IVECO-FRANCE
Motor : 8460.41.6000

TEST BENCH REQUIREMENTS

Inlet line : 4.2
Test oil inlet temp. °C : 40
Tolerance °C : ± 2.0
Overflow valve : 2 417 413 076
Inlet press. bar : 2.5
Tolerance bar : ± 0.1
Test nozzle holder assembly : 1 688 901 105
Opening pressure bar : 208.5
Tolerance bar : ± 1.5
Test lines : 1 680 750 089
Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 600

REMARKS

Pump-specific values in Section (B) must be observed!

(A) INJECTION PUMP SETTINGS
No basic setting.
Setting of constant delivery under Section C.

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 2.85
Tolerance mm : ± 0.05
Check tolerance mm : ± 0.10

Rack travel in mm : 20.50
Tolerance mm : ± 0.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.50
Check tolerance *NW : ± 0.75

Start of delivery blocking

Check tolerance *NW : ± 0.40

Barrel no. : 1

(B) POSITIONER TESTING

Warm-up time: 3 minutes at
n=600 min⁻¹, Uact = 2.5 V

TESTING & SETTING RACK TRAVEL SENSOR POSITION

Engine speed min-1: 0

Setting point
(P, R and H pump)

Uact V : 3.100
CRT mm : 13.00
Tolerance mm : +/- 0.05
Check tolerance mm : +/- 0.10

Check value
(P, R and H pump)

Uact V : 1.700
CRT mm : 6.15
Tolerance mm : +/- 0.25
Check tolerance mm : +/- 0.30

Setting point
(M pump)

Uact V : 3.100
CRT mm : 12.50
Tolerance mm : +/- 0.05
Check tolerance mm : +/- 0.10

Check value
(M pump)

Uact V : 1.700
CRT mm : 5.50
Tolerance mm : +/- 0.25
Check tolerance mm : +/- 0.30

Stop position

Uact V : Value with
deenergised adjusting magnet
and control rod in
stop position.

CRT mm : 0.75
Tolerance mm : +/- 0.25
Check tolerance mm : +/- 0.35

ENGINE-SPEED SENSOR
(ALL P and R pumps not
H and M pumps)

Test with control rod
in stop position

Engine speed min-1: 60
Amplitude V : 1.4
Tolerance V : +/- 0.6
Check tolerance V : +/- 1.20

Engine speed min-1: 600
Difference
Amplitude to
Amplitude V : max.1.4

(C) INJECTION PUMP WITH POSITIONER

TEST POINT V1

Rated speed rpm : 1050
Uact V : 2.900
Del. quantity
cm³/1000 strokes : 296.0
cm³/1000 strokes : +/- 1.0
Check tolerance
cm³/1000S. : +/- 4.0
Spreed
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. : 9.0

FUEL DELIVERY CHARACTERISTICS

Rated speed rpm : 500
Uact V : 2.690
Del. quantity
cm³/1000 strokes : 238.0
cm³/1000 strokes : +/- 3.0
Check tolerance
cm³/1000S. : +/- 6.0

TEST POINT L1

Rated speed rpm : 275
Uact V : 1.640
Tolerance Volt : +/- 0.030
Check tolerance
Volt : +/- 0.060
Del. quantity
cm³/1000 strokes : 24.0
cm³/1000 strokes : +/- 3.0
Spreed
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 04.11.96
Test oil : ISO 4113
Combination No. : 0 403 456 122A

Injection pump
Pump designation : PES6MW100/321RS1201
EP type number : 0 413 406 190

Governor
Governor design. : RQ250/1200MW84-13
Governor no. : 0 420 082 068

Cust. part No. : 3-7561

Customer-spec. information
Customer : MAN
Motor : D 0826 LOH13
Power KW : 151.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 419 992 198

Inlet press. bar : 1.5

Test nozzle holder
assembly : 0 681 343 009

Opening pressure
bar : 173.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 31.0
Tolerance bar : ± 1.0

Prestroke mm : 3.55
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 15.00

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.50
Check
tolerance *NW : ± 0.75

Start of delivery mark

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1000

Rack travel in mm : 12.00
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 123.0

cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : ± 3.0

Speed
cm³/1000 strokes : 3.5

Check tolerance
cm³/1000S. : 6.0

Rated speed rpm : 250

Rack travel in mm : 5.70
Tolerance mm : + 0.10

Del. quantity
cm³/1000 strokes : 22.0
cm³/1000 strokes : + 2.0

Check tolerance
cm³/1000S. : + 4.5

Speed
cm³/1000 strokes : 3.5

Check tolerance
cm³/1000S. : 5.5

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 250
guide sleeve
travel mm : 1.66
Tolerance mm : + 0.10

Rated speed rpm : 1257
guide sleeve
travel mm : 7.61
Tolerance mm : + 0.10

Rated speed rpm : 1200
guide sleeve
travel mm : 7.30
Tolerance mm : + 0.10

Rated speed rpm : 912
guide sleeve
travel mm : 7.08
Tolerance mm : + 0.10

Rated speed rpm : 359
guide sleeve
travel mm : 3.70
Tolerance mm : + 0.10

Rated speed rpm : 520
guide sleeve
travel mm : 7.00
Tolerance mm : + 0.10

Rated speed rpm : 1380

guide sleeve
travel mm : 11.50
Tolerance mm : + 0.50

Rated speed rpm : 1059
guide sleeve
travel mm : 7.23
Tolerance mm : + 0.10

GUIDE SLEEVE POSITION

Rated speed rpm : 600

Rack travel in mm : 16.50
Tolerance mm : + 0.80

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1000
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 123.0
cm³/1000 strokes : + 1.0
Check tolerance
cm³/1000S. : + 3.0
Speed
cm³/1000 strokes : 3.5
Check tolerance
cm³/1000S. : 6.0

CONTROL LEVER

control lever
position degree : 102.0
tolerance degree : + 4.0

RATED SPEED

rack travel mm : 10.40
Rated speed rpm : 1253
Tolerance 1/min : + 8

rack travel mm : 4.00
Rated speed rpm : 1305
Tolerance 1/min : + 15

rack travel mm : 0.50
Tolerance mm : + 0.50
Rated speed rpm : 1400

LOW IDLE

control lever
position degree : 73.0
tolerance degree : ± 4.0

Testing:

Rated speed rpm : 250
rack travel mm : 5.70
Tolerance mm : ± 0.10

Rated speed rpm : 150

CRT mm min. : > 7.00

TORQUE CONTROL

Rated speed rpm : 1000
rack travel mm : 12.00
Tolerance mm : ± 0.05

Rated speed rpm : 700
rack travel mm : 12.20
Tolerance mm : ± 0.10

Rated speed rpm : 1200
rack travel mm : 11.40
Tolerance mm : ± 0.10

ANEROID/ALTITUDE
COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 1000
rack travel mm : 12.20
Tolerance mm : ± 0.10

MEASUREMENT

Pressure hPa : -
Rated speed rpm : 500
rack travel mm : 10.35
Tolerance mm : ± 0.05

Rated speed rpm : 500

Pressure hPa : 350
rack travel mm : 11.60
Tolerance mm : ± 0.15

Pressure hPa : 150
rack travel mm : 10.65
Tolerance mm : ± 0.05

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1000
Rated speed rpm : 700
Del. quantity
cm³/1000 strokes : 123.0
cm³/1000 strokes : ± 1.5
Check tolerance
cm³/1000S. : ± 4.0
Spreed
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. : 7.0

Aneroid pressure
hPa : 1000
Rated speed rpm : 1200
Del. quantity
cm³/1000 strokes : 119.0
cm³/1000 strokes : ± 1.5
Check tolerance
cm³/1000S. : ± 4.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 75.0
cm³/1000 strokes : ± 1.0
Check tolerance
cm³/1000S. : ± 3.0

BREAKAWAY

Rack travel in mm : 10.40
Rated speed rpm : 1253
Tolerance 1/min : ± 8

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 10.35
Tolerance mm : ± 0.50
Del. quantity
cm³/1000 strokes : 70.0
cm³/1000 strokes : ± 10.0
Check tolerance
cm³/1000S. : ± 13.0

LOW IDLE

Rated speed rpm : 250
Del. quantity
cm³/1000 strokes : 22.0
cm³/1000 strokes : +- 2.0
Check tolerance
cm³/1000S. : +- 4.5
Spreed
cm³/1000 strokes : 3.5
Check tolerance
cm³/1000S. : 5.5

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 07.11.96
Test oil : ISO 4113

Combination No. : 0 401 876 345

Injection pump
Pump designation : PE6P120B320RS3301
EP type number : 0 411 826 819

Governor
Governor design. : RSV250...1100POA656
Governor no. : 0 421 833 574

Cust. part No. : 3826519 P01 v. 10/96

Customer-spec. information
Customer : PENTA
Motor : TAMD 102 D
Power KW : 315.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Vibration damper
(RoBo diaphragm) : 4.1

Test oil inlet temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 077

Inlet press. bar : 1.5
Tolerance bar : ± 0.1

Test nozzle holder assembly : 1 688 901 019

Opening pressure bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 075
Outside diameter : 8.0
x inside diameter : 3.0
x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 3.45
Tolerance mm : ± 0.05
Check tolerance mm : ± 0.10

Rack travel in mm : 8.10
Tolerance mm : ± 0.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.30
Check tolerance °NW : ± 0.50

Start of delivery mark

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1100

Rack travel in mm : 13.10
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 275.0

cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : ± 4.0

Spreed
cm³/1000 strokes : 7.0

Check tolerance
cm³/1000S. : 11.0

Rated speed rpm : 250

Rack travel in mm : 6.20
Tolerance mm : ± 0.10

Del. quantity
cm³/1000 strokes : 24.0
cm³/1000 strokes : ± 2.5

Check tolerance
cm³/1000S. : ± 5.0

Spreed
cm³/1000 strokes : 3.0

Check tolerance
cm³/1000S. : 6.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE POSITION

Rated speed rpm : 800

Rack travel in mm : 0.50
Tolerance mm : ± 0.20

governor spring
pre-tension
click setting x : 2.25

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1100

Aneroid pressure
hPa : 1500

Del. quantity
cm³/1000 strokes : 275.0
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : ± 4.0

Spreed
cm³/1000 strokes : 7.0

Check tolerance
cm³/1000S. : 11.0

CONTROL LEVER

control lever
position degree : 44.0
tolerance degree : ± 4.0

control lever
position degree : 94.0
tolerance degree : ± 4.0

RATED SPEED

rack travel mm : 12.10
Rated speed rpm : 1145
Tolerance 1/min : ± 5

rack travel mm : 4.00
Rated speed rpm : 1230
Tolerance 1/min : ± 15

rack travel mm : 0.85
Tolerance mm : ± 0.55
Rated speed rpm : 1350

rack travel mm : 4.00
Rated speed rpm : 1240

LOW IDLE

control lever
position degree : 69.0
tolerance degree : ± 4.0

control lever
position degree : 19.0
tolerance degree : ± 4.0

Setting point w/out bumper spring

Rated speed rpm : 250
rack travel mm : 5.70

Testing:

Rated speed rpm : 250
rack travel mm : 6.20
Tolerance mm : ± 0.10

rack travel mm : 2.00
Rated speed rpm : 370
Tolerance 1/min : ± 30

TORQUE CONTROL

Rated speed rpm : 1100
rack travel mm : 13.10
Tolerance mm : ± 0.05

Rated speed rpm : 700
rack travel mm : 13.10
Tolerance mm : ± 0.05

ANEROID/ALTITUDE
COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 1500
rack travel mm : 13.10
Tolerance mm : ± 0.05

MEASUREMENT

Pressure hPa : -
Rated speed rpm : 500
rack travel mm : 8.10
Tolerance mm : ± 0.10

Rated speed rpm : 500

Pressure hPa : 1120
rack travel mm : 4.70
Tolerance mm : ± 0.15

Pressure hPa : 160
rack travel mm : 0.25
Tolerance mm : ± 0.05

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1500
Rated speed rpm : 700
Del. quantity
cm³/1000 strokes : 299.0
cm³/1000 strokes : ± 3.0
Check tolerance
cm³/1000S. : ± 6.0
Spreed
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

Aneroid pressure
hPa : -
Rated speed rpm : 700
Del. quantity
cm³/1000 strokes : 148.0
cm³/1000 strokes : ± 1.0
Check tolerance
cm³/1000S. : ± 4.0

BREAKAWAY

Rack travel in mm : 12.10
Rated speed rpm : 1145
Tolerance 1/min : ± 5

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 15.00
Tolerance mm : ± 0.50

LOW IDLE

Rated speed rpm : 250
Del. quantity
cm³/1000 strokes : 24.0
cm³/1000 strokes : ± 2.5
Check tolerance
cm³/1000S. : ± 5.0
Spreed
cm³/1000 strokes : 3.0
Check tolerance
cm³/1000S. : 6.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 08.11.96
Test oil : ISO 4113

Combination No. : 0 402 846 302

Injection pump
Pump designation : PE6P120A320RS8520
EP type number : 0 412 826 202

Governor
Governor design. : RQV275...1000PA1269K
Governor no. : 0 421 815 969

Cust. part No. : 1310222/2

Customer-spec. information
Customer : DAF
Motor : XF 355 M
Power KW : 355.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet
temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 2 417 413 086

Inlet press. bar : 2.5
Tolerance bar : + 0.1

Overflow quantity
min. l/h : 110
Tolerance l/h : + 20.0

Test nozzle holde
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : + 1.5

F04

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : + 1.0

Prestroke mm : 4.85
Tolerance mm : + 0.05
Check
tolerance mm : + 0.10

Rack travel in mm : 10.50
Tolerance mm : + 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : + 0.30
Check
tolerance °NW : + 0.50

Start of delivery mark

Tolerance : + 0.10
Check
tolerance °NW : + 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 980

Rack travel in mm : 14.15
Tolerance mm : + 0.05

<hr/>	
Del. quantity	
cm ³ /1000 strokes :	353.0
<hr/>	
cm ³ /1000 strokes :	+ 1.0
<hr/>	
Check tolerance	
cm ³ /1000S. :	+ 5.0
<hr/>	
Spreed	
cm ³ /1000 strokes :	6.0
<hr/>	
Check tolerance	
cm ³ /1000S. :	12.0
<hr/>	
Rated speed rpm :	275
<hr/>	
Rack travel in mm :	4.50
Tolerance mm :	+ 0.10
Del. quantity	
cm ³ /1000 strokes :	18.0
cm ³ /1000 strokes :	+ 3.0
Check tolerance	
cm ³ /1000S. :	+ 6.0
Spreed	
cm ³ /1000 strokes :	8.0
Check tolerance	
cm ³ /1000S. :	13.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm :	275
guide sleeve	
travel mm :	2.04
Tolerance mm :	+ 0.20
<hr/>	
Rated speed rpm :	1063
guide sleeve	
travel mm :	10.06
Tolerance mm :	+ 0.15
<hr/>	
Rated speed rpm :	399
guide sleeve	
travel mm :	3.39
Tolerance mm :	+ 0.25
<hr/>	
Rated speed rpm :	1260
guide sleeve	
travel mm :	13.50
Tolerance mm :	+ 0.50

GUIDE SLEEVE POSITION

Rated speed rpm :	1123
Rack travel in mm :	13.20
Tolerance mm :	+ 2.70

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm :	980
Aneroid pressure	
hPa :	1500
Del. quantity	
cm ³ /1000 strokes :	353.0
cm ³ /1000 strokes :	+ 1.0
Check tolerance	
cm ³ /1000S. :	+ 5.0
Spreed	
cm ³ /1000 strokes :	6.0
Check tolerance	
cm ³ /1000S. :	12.0

CONTROL LEVER

control lever	
position degree :	118.0
tolerance degree :	+ 4.0

RATED SPEED

rack travel mm :	13.15
Rated speed rpm :	1050
Tolerance 1/min :	+ 5
<hr/>	
rack travel mm :	4.00
Rated speed rpm :	1160
Tolerance 1/min :	+ 15
<hr/>	
rack travel mm :	0.70
Tolerance mm :	+ 0.70
Rated speed rpm :	1275

LOW IDLE

control lever	
position degree :	73.0
tolerance degree :	+ 4.0

Testing:

Rated speed rpm :	275
rack travel mm :	4.50
Tolerance mm :	+ 0.10
<hr/>	
Rated speed rpm :	175

CRT mm min. : > 6.00
Rated speed rpm : 300

TORQUE CONTROL

Rated speed rpm : 980
rack travel mm : 14.15
Tolerance mm : + 0.05

Rated speed rpm : 800
rack travel mm : 13.85
Tolerance mm : + 0.10

Rated speed rpm : 750
rack travel mm : 13.45
Tolerance mm : + 0.05

Rated speed rpm : 700
rack travel mm : 13.05
Tolerance mm : + 0.10

Rated speed rpm : 600
rack travel mm : 12.50
Tolerance mm : + 0.10

Rated speed rpm : 500
rack travel mm : 12.25
Tolerance mm : + 0.10

ANEROID/ALTITUDE
COMPENSATOR TEST

SETTING

Rated speed rpm : 980
Pressure hPa : 1500
rack travel mm : 14.15
Tolerance mm : + 0.05

MEASUREMENT

Pressure hPa : -
Rated speed rpm : 980
rack travel mm : 8.95
Tolerance mm : + 0.10

Rated speed rpm : 980

Pressure hPa : 750
rack travel mm : 12.90
Tolerance mm : + 0.05

Pressure hPa : 380
rack travel mm : 10.30
Tolerance mm : + 0.10

F06

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1500
Rated speed rpm : 750
Del. quantity
cm³/1000 strokes : 351.0
cm³/1000 strokes : + 2.0
Check tolerance
cm³/1000S. : + 6.0
Spreed
cm³/1000 strokes : 10.0
Check tolerance
cm³/1000S. : 15.0

Aneroid pressure
hPa : -
Rated speed rpm : 600
Del. quantity
cm³/1000 strokes : 200.0
cm³/1000 strokes : + 1.0
Check tolerance
cm³/1000S. : + 5.0
Spreed
cm³/1000 strokes : 10.0
Check tolerance
cm³/1000S. : 15.0

BREAKAWAY

Rack travel in mm : 13.15
Rated speed rpm : 1050
Tolerance 1/min : + 5

LOW IDLE

Rated speed rpm : 275
Del. quantity
cm³/1000 strokes : 18.0
cm³/1000 strokes : + 3.0
Check tolerance
cm³/1000S. : + 6.0
Spreed
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 13.0

End of test specification sheet



BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 07.11.96
Test oil : ISO 4113

Combination No. : 0 402 946 014

Injection pump
Pump designation : PES6P120A720LS8037
EP type number : 0 412 926 024

Governor
Governor design. : RQV250...1050PA1236K
Governor no. : 0 421 815 970

Cust. part No. : 1370101

Customer-spec. information
Customer : SCANIA
Motor : DSC1202

TEST BENCH REQUIREMENTS

Inlet line : EHAB

Test oil inlet temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 082

Inlet press. bar : 2.5
Tolerance bar : ± 0.1

Overflow quantity min. l/h : 85
Tolerance l/h : ± 10.0

Test nozzle holder assembly : 1 688 901 104

Opening pressure bar : 251.5
Tolerance bar : ± 1.5

Test Lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant. per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 4.40
Tolerance mm : ± 0.05
Check tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.30
Check tolerance °NW : ± 0.50

Start of delivery blocking

*NW after s.o.d. : 180.00
Tolerance : ± 0.50
Check tolerance °NW : ± 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 775

Rack travel in mm : 14.05
 Tolerance mm : + 0.05

Del. quantity
 cm³/1000 strokes : 330.0

cm³/1000 strokes : + 1.0

Check tolerance
 cm³/1000S. : + 10.0

Spreed
 cm³/1000 strokes : 8.0

Check tolerance
 cm³/1000S. : 14.0

Rated speed rpm : 250

Rack travel in mm : 4.60
 Tolerance mm : + 0.30
 Del. quantity
 cm³/1000 strokes : 19.0
 cm³/1000 strokes : + 3.0
 Check tolerance
 cm³/1000S. : + 6.0
 Spreed
 cm³/1000 strokes : 4.0
 Check tolerance
 cm³/1000S. : 8.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 250
 guide sleeve
 travel mm : 1.79
 Tolerance mm : + 0.20

Rated speed rpm : 1116
 guide sleeve
 travel mm : 10.09
 Tolerance mm : + 0.15

Rated speed rpm : 644
 guide sleeve
 travel mm : 4.47
 Tolerance mm : + 0.25

Rated speed rpm : 290
 guide sleeve
 travel mm : 2.62
 Tolerance mm : + 0.25

Rated speed rpm : 1310
 guide sleeve
 travel mm : 13.50
 Tolerance mm : + 0.50

GUIDE SLEEVE POSITION

Rated speed rpm : 1170
 Rack travel in mm : 12.10
 Tolerance mm : + 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 775
 Aneroid pressure
 hPa : 1500
 Del. quantity
 cm³/1000 strokes : 330.0
 cm³/1000 strokes : + 1.0
 Check tolerance
 cm³/1000S. : + 10.0
 Spreed
 cm³/1000 strokes : 8.0
 Check tolerance
 cm³/1000S. : 14.0

CONTROL LEVER

control lever
 position degree : 63.0
 tolerance degree : + 4.0

control lever
 position degree : 121.0
 tolerance degree : + 4.0

RATED SPEED

rack travel mm : 12.10
 Rated speed rpm : 1095
 Tolerance 1/min : + 5

rack travel mm : 4.00
 Rated speed rpm : 1180
 Tolerance 1/min : + 15

rack travel mm : 0.50
 Tolerance mm : + 0.50
 Rated speed rpm : 1300

LOW IDLE

control lever
position degree : 75.0
tolerance degree : ± 4.0

control lever
position degree : 17.0
tolerance degree : ± 4.0

Testing:

Rated speed rpm : 250
rack travel mm : 4.60
Tolerance mm : ± 0.30

Rated speed rpm : 150

CRT mm min. : > 7.30

Rated speed rpm : 275

TORQUE CONTROL

Rated speed rpm : 775
rack travel mm : 14.05
Tolerance mm : ± 0.05

Rated speed rpm : 650
rack travel mm : 13.05
Tolerance mm : ± 0.10

Rated speed rpm : 1050
rack travel mm : 13.10
Tolerance mm : ± 0.10

Rated speed rpm : 675
rack travel mm : 13.30
Tolerance mm : ± 0.30

ANEROID/ALTITUDE
COMPENSATOR TEST

SETTING

Rated speed rpm : 775
Pressure hPa : 1500
rack travel mm : 14.95
Tolerance mm : ± 0.10

MEASUREMENT

Pressure hPa : -
Rated speed rpm : 775
rack travel mm : 8.50
Tolerance mm : ± 0.20

Rated speed rpm : 775

Pressure hPa : 300
rack travel mm : 9.80
Tolerance mm : ± 0.15

Pressure hPa : 610
rack travel mm : 11.50
Tolerance mm : ± 0.05

START CUT-OUT

Rated speed rpm : > 100
Rated speed rpm : < 170

Check
speed 1/min : > 80

Check
speed 1/min : < 190

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1500
Rated speed rpm : 650
Del. quantity
cm³/1000 strokes : 319.0
cm³/1000 strokes : ± 4.0
Check tolerance
cm³/1000S. : ± 10.0

Aneroid pressure
hPa : 1500
Rated speed rpm : 1050
Del. quantity
cm³/1000 strokes : 272.0
cm³/1000 strokes : ± 4.0
Check tolerance
cm³/1000S. : ± 8.0

Aneroid pressure
hPa : 1500
Rated speed rpm : 675
Del. quantity
cm³/1000 strokes : 323.0
cm³/1000 strokes : ± 4.0
Check tolerance
cm³/1000S. : ± 10.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 192.0
cm³/1000 strokes : ± 1.0
Check tolerance
cm³/1000S. : ± 4.0

BREAKAWAY

Rack travel in mm : 12.10
Rated speed rpm : 1095
Tolerance 1/min : +- 5

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 10.70
Tolerance mm : +- 0.50
Del. quantity
cm³/1000 strokes : 210.0
cm³/1000 strokes : +- 20.0
Check tolerance
cm³/1000S. : +- 24.0

LOW IDLE

Rated speed rpm : 250
Del. quantity
cm³/1000 strokes : 19.0
cm³/1000 strokes : +- 3.0
Check tolerance
cm³/1000S. : +- 6.0
Spreed
cm³/1000 strokes : 4.0
Check tolerance
cm³/1000S. : 8.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 08.11.96
Test oil : ISO 4113

Combination No. : 0 400 074 884

Injection pump
Pump designation : PES4M55C320RS184
EP type number : 0 410 054 938

Governor
Governor design. : RSF375/1900M77
Governor no. : 0 420 021 273

Cust. part No. :

Customer-spec. information
Customer : MB-PKW
Motor : OM601-2.3L
Power KW : 58.0

TEST BENCH REQUIREMENTS

Test oil inlet
temp. °C : 40
Tolerance °C : +- 2.0

Overflow valve : 1 469 990 351

Inlet press. bar : 1.0

Test nozzle holder
assembly : 1 688 901 111

Opening pressure
bar : 148.5
Tolerance bar : +- 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

F12

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : +- 1.0

Prestroke mm : 2.05
Tolerance mm : +- 0.05
Check
tolerance mm : +- 0.10

Rack travel in mm : 21.00
Tolerance mm : +- 1.00

Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270

Start of delivery blocking

*NW after s.o.d. : 16.50
Tolerance : +- 0.20
Check
tolerance *NW : +- 0.30

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1850

Rack travel in mm : 12.30
Tolerance mm : +- 0.05

Del. quantity
cm³/1000 strokes : 42.0

cm³/1000 strokes : +- 0.5

Check tolerance
cm³/1000S. : +- 1.5

Speed
cm³/1000 strokes : 2.5

Check tolerance
cm³/1000S. : 3.0

Rated speed rpm : 375
Rack travel in mm : 4.70
Tolerance mm : \pm 0.10
Del. quantity
cm³/1000 strokes : 6.5
cm³/1000 strokes : \pm 0.5
Spreed
cm³/1000 strokes : 1.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

—————
IDLE STAGE

Rack travel in mm : 6.25
Tolerance mm : \pm 0.25

—————
FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1850
Ref. pressure
ALDA / ADA hPa : 1100
Del. quantity
cm³/1000 strokes : 42.0
cm³/1000 strokes : \pm 0.5
Check tolerance
cm³/1000S. : \pm 1.5
Spreed
cm³/1000 strokes : 2.5
Check tolerance
cm³/1000S. : 3.0

—————
RATED SPEED

control lever
position degree : 50.0

Rated speed rpm : 2200
rack travel mm : 5.60
Tolerance mm : \pm 0.25

Rated speed rpm : 2400
rack travel mm : 0.50
Tolerance mm : \pm 0.50

—————
SET IDLE CONTROL LEVER POSITION

Rated speed rpm : 1000
CRT mm max. : 1.45

—————
LOW IDLE

control lever
position degree : 14.0
tolerance degree : \pm 2.0

Setting point w/out bumper spring
Rated speed rpm : 375
rack travel mm : 4.70

SET IDLE AUXILIARY SPRING

Rated speed rpm : 450
rack travel mm : 3.40
Tolerance mm : \pm 0.10

Load pick-up

Rated speed rpm : 250
rack travel mm : $>$ 10.20

Rated speed rpm : 1000

CRT mm max. : 1.45

rack travel mm : 4.70
Rated speed rpm : 375

—————
TORQUE CONTROL

Rated speed rpm : 1850
rack travel mm : 12.30
Tolerance mm : \pm 0.05

Rated speed rpm : 1000
rack travel mm : 12.35
Tolerance mm : \pm 0.10

—————
ADJUSTMENT TEST ADA/ALDA

SETTING

Rated speed rpm : 1000
Ref. pressure
ALDA / ADA hPa : 940
rack travel mm : -0.10
Tolerance mm : \pm 0.10

MEASUREMENT

Rated speed rpm : 1000
Ref. pressure
ALDA / ADA hPa : 900
rack travel mm : -0.40

Tolerance mm : + 0.10
Ref. pressure
ALDA / ADA hPa : 750
rack travel mm : -1.50
Tolerance mm : + 0.20

FUEL DELIVERY CHARACTERISTICS

Ref. pressure
ALDA / ADA hPa : 1100
Rated speed rpm : 1000
Del. quantity
cm³/1000 strokes : 39.4
cm³/1000 strokes : + 1.0
Check tolerance
cm³/1000S. : + 2.0
Spreed
cm³/1000 strokes : 2.5
Check tolerance
cm³/1000S. : 3.0

HIGH IDLE

Ref. pressure
ALDA / ADA hPa : 1100
Rated speed rpm : 2200
rack travel mm : 5.60
Tolerance mm : + 0.25
Del. quantity
cm³/1000 strokes : 16.0
cm³/1000 strokes : + 2.0
Check tolerance
cm³/1000S. : + 3.0
Spreed
cm³/1000 strokes : 2.5
Check tolerance
cm³/1000S. : 3.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : > 20.10
Del. quantity
cm³/1000 strokes : 59.8
cm³/1000 strokes : + 4.0
Check tolerance
cm³/1000S. : + 5.0
Spreed
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 6.0

LOW IDLE

Rated speed rpm : 375
Del. quantity
cm³/1000 strokes : 7.8
Check tolerance
cm³/1000S. : + 2.3
Spreed
Check tolerance
cm³/1000S. : 1.5

control lever
position degree : > 47.00

control lever
position degree : < 44.50

SETTING PNEUMATIC FAST IDLE (PLA) (PLA) POSITION

control lever
position degree : 14.0
tolerance degree : + 2.0

Rated speed rpm : 425
Rack travel in mm : 7.00
Tolerance mm : + 0.80
Del. quantity
cm³/1000 strokes : 15.3
cm³/1000 strokes : + 3.5
Check tolerance
cm³/1000S. : + 4.5
Vacuum hPa : 450.0

TESTING PNEUMATIC SHUTOFF DEVICE

Rated speed rpm : 375
Vacuum hPa : -450.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 08.11.96
 Test oil : ISO 4113
 Combination No. : 0 400 075 925
 Injection pump
 Pump designation : PESSM55C320RS201
 EP type number : 0 410 055 972
 Governor
 Governor design. : RSF350/2500M56-13
 Governor no. : 0 420 021 171

Cust. part No. :

Customer-spec. information
 Customer : MB-PKW
 Motor : OM605
 Power KW : 83.0

TEST BENCH REQUIREMENTS

Test oil inlet temp. °C : 40
 Tolerance °C : + 2.0
 Overflow valve : 1 469 990 351
 Inlet press. bar : 1.0
 Test nozzle holder assembly : 1 688 901 111
 Opening pressure bar : 148.5
 Tolerance bar : + 1.5
 Test lines : 1 680 750 014
 Outside diameter : 6.0
 x inside diameter : 2.0
 x length mm : 600

F15

REMARKS

(A) INJECTION PUMP SETTING VALUES
 Set equal delivery quant. per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
 Tolerance bar : + 1.0

Prestroke mm : 1.75
 Tolerance mm : + 0.05
 Check tolerance mm : + 0.10

Rack travel in mm : 21.00
 Tolerance mm : + 1.00

Firing order : 1- 2- 4- 5- 3

Phasing : 0-72-144-216-288

Start of delivery blocking

*NW after s.o.d. : 16.50
 Tolerance : + 0.20
 Check tolerance *NW : + 0.30

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1400

Rack travel in mm : 12.75
 Tolerance mm : + 0.05

Del. quantity cm³/1000 strokes : 37.0
 cm³/1000 strokes : + 0.5

Check tolerance cm³/1000S. : + 1.5

Speed cm³/1000 strokes : 2.5

Check tolerance
 cm³/1000S. : 3.0
 Rated speed rpm : 350
 Rack travel in mm : 7.40
 Tolerance mm : ± 0.10
 Del. quantity
 cm³/1000 strokes : 8.5
 cm³/1000 strokes : ± 0.5
 Spreed
 cm³/1000 strokes : 1.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

IDLE STAGE

Rack travel in mm : 6.25
 Tolerance mm : ± 0.25

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1400
 Ref. pressure
 ALDA / ADA hPa : 1100
 Del. quantity
 cm³/1000 strokes : 37.0
 cm³/1000 strokes : ± 0.5
 Check tolerance
 cm³/1000S. : ± 1.5
 Spreed
 cm³/1000 strokes : 2.5
 Check tolerance
 cm³/1000S. : 3.0

RATED SPEED

control lever
 position degree : 50.0

Rated speed rpm : 2700
 rack travel mm : 7.50
 Tolerance mm : ± 0.30

Rated speed rpm : 3150
 rack travel mm : 0.50
 Tolerance mm : ± 0.50

SET IDLE CONTROL LEVER POSITION

Rated speed rpm : 1400

CRT mm max. : 1.95

LOW IDLE

Setting point w/out bumper spring
 Rated speed rpm : 350
 rack travel mm : 7.40

SET IDLE AUXILIARY SPRING

Rated speed rpm : 475
 rack travel mm : 5.40
 Tolerance mm : ± 0.10

rack travel mm : 3.00
 Rated speed rpm : 700
 Tolerance 1/min : ± 50

Load pick-up

Rated speed rpm : 250
 rack travel mm : > 10.00

Rated speed rpm : 1400

CRT mm max. : 1.95

rack travel mm : 7.40
 Rated speed rpm : 350

TORQUE CONTROL

Rated speed rpm : 1400
 rack travel mm : 12.75
 Tolerance mm : ± 0.05

Rated speed rpm : 2300
 rack travel mm : 12.30
 Tolerance mm : ± 0.15

Rated speed rpm : 2500
 rack travel mm : 11.90
 Tolerance mm : ± 0.15

ADJUSTMENT TEST ADA/ALDA

SETTING

Rated speed rpm : 1400
 Ref. pressure
 ALDA / ADA hPa : 940
 rack travel mm : -0.10
 Tolerance mm : ± 0.10

MEASUREMENT

Rated speed rpm : 1400
Ref. pressure
ALDA / ADA hPa : 900
rack travel mm : -0.40
Tolerance mm : +- 0.10

Ref. pressure
ALDA / ADA hPa : 750
rack travel mm : -1.50
Tolerance mm : +- 0.20

FUEL DELIVERY CHARACTERISTICS

Ref. pressure
ALDA / ADA hPa : 1100
Rated speed rpm : 2300
Del. quantity
cm3/1000 strokes : 39.3
cm3/1000 strokes : +- 0.8
Check tolerance
cm3/1000S. : +- 1.8
Spreed
cm3/1000 strokes : 2.5
Check tolerance
cm3/1000S. : 3.0

Ref. pressure
ALDA / ADA hPa : 1100
Rated speed rpm : 2500
Spreed
Del. quantity
cm3/1000 strokes : 38.0
cm3/1000 strokes : +- 1.0
Check tolerance
cm3/1000S. : +- 2.0
Spreed
cm3/1000 strokes : 2.5
Check tolerance
cm3/1000S. : 3.0

HIGH IDLE

Ref. pressure
ALDA / ADA hPa : 1100
Rated speed rpm : 2700
rack travel mm : 7.50
Tolerance mm : +- 0.30
Del. quantity
cm3/1000 strokes : 14.0
cm3/1000 strokes : +- 2.0
Check tolerance
cm3/1000S. : +- 3.0

STARTING FUEL DELIVERY

F17

Rated speed rpm : 100
rack travel mm : 21.60
Tolerance mm : +- 1.50
Del. quantity
cm3/1000 strokes : 55.0
cm3/1000 strokes : +- 4.0
Check tolerance
cm3/1000S. : +- 5.0
Spreed
cm3/1000 strokes : 6.0
Check tolerance
cm3/1000S. : 6.0

LOW IDLE

Rated speed rpm : 350
Del. quantity
cm3/1000 strokes : 9.5
Check tolerance
cm3/1000S. : +- 2.3
Spreed
Check tolerance
cm3/1000S. : 1.5

control lever
position degree : > 49.00

control lever
position degree : < 46.50

SETTING PNEUMATIC FAST IDLE (PLA) (PLA) POSITION

Rated speed rpm : 400
Rack travel in mm : 8.25
Tolerance mm : +- 0.70
Del. quantity
cm3/1000 strokes : 12.0
cm3/1000 strokes : +- 3.5
Check tolerance
cm3/1000S. : +- 4.5
Vacuum hPa : 450.0

TESTING PNEUMATIC SHUTOFF DEVICE

Rated speed rpm : 350
Vacuum hPa : -450.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 08.11.96
Test oil : ISO 4113

Combination No. : 0 400 075 926

Injection pump
Pump designation : PES5M55C320RS201
EP type number : 0 410 055 972

Governor
Governor design. : RSF350/2500M75-3
Governor no. : 0 420 021 173

Cust. part No. :

Customer-spec. information
Customer : MB-PKW
Motor : OM605
Power KW : 83.0

TEST BENCH REQUIREMENTS

Test oil inlet
temp. °C : 40
Tolerance °C : +- 2.0

Overflow valve : 1 469 990 351

Inlet press. bar : 1.0

Test nozzle holde
assembly : 1 688 901 111

Opening pressure
bar : 148.5
Tolerance bar : +- 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

F19

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : +- 1.0

Prestroke mm : 1.75
Tolerance mm : +- 0.05
Check
tolerance mm : +- 0.10

Rack travel in mm : 21.00
Tolerance mm : +- 1.00

Firing order : 1- 2- 4- 5- 3

Phasing : 0-72-144-216-288

Start of delivery blocking

*NW after s.o.d. : 16.50
Tolerance : +- 0.20
Check
tolerance *NW : +- 0.30

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1400

Rack travel in mm : 12.75
Tolerance mm : +- 0.05

Del. quantity
cm³/1000 strokes : 37.0

cm³/1000 strokes : +- 0.5

Check tolerance
cm³/1000S. : +- 1.5

Speed

cm³/1000 strokes : 2.5

 Check tolerance
 cm³/1000S. : 3.0
 Rated speed rpm : 350
 Rack travel in mm : 7.40
 Tolerance mm : ± 0.10
 Del. quantity
 cm³/1000 strokes : 8.5
 cm³/1000 strokes : ± 0.5
 Spreed
 cm³/1000 strokes : 1.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

—————
IDLE STAGE

Rack travel in mm : 6.25
 Tolerance mm : ± 0.25

—————
FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1400
 Ref. pressure
 ALDA / ADA hPa : 1100
 Del. quantity
 cm³/1000 strokes : 37.0
 cm³/1000 strokes : ± 0.5
 Check tolerance
 cm³/1000S. : ± 1.5
 Spreed
 cm³/1000 strokes : 2.5
 Check tolerance
 cm³/1000S. : 3.0

—————
RATED SPEED

control lever
 position degree : 50.0

Rated speed rpm : 2700
 rack travel mm : 7.50
 Tolerance mm : ± 0.30

Rated speed rpm : 3150
 rack travel mm : 0.50
 Tolerance mm : ± 0.50

—————
SET IDLE CONTROL LEVER POSITION

Rated speed rpm : 1400
 CRT mm max. : 1.95

—————
LOW IDLE

Setting point w/out Lumper spring
 Rated speed rpm : 350
 rack travel mm : 7.40

SET IDLE AUXILIARY SPRING

Rated speed rpm : 475
 rack travel mm : 5.40
 Tolerance mm : ± 0.10

rack travel mm : 3.00
 Rated speed rpm : 700
 Tolerance 1/min : ± 50

Load pick-up

Rated speed rpm : 250
 rack travel mm : > 10.00

Rated speed rpm : 1400

CRT mm max. : 1.95

rack travel mm : 7.40
 Rated speed rpm : 350

—————
TORQUE CONTROL

Rated speed rpm : 1400
 rack travel mm : 12.75
 Tolerance mm : ± 0.05

Rated speed rpm : 2300
 rack travel mm : 12.30
 Tolerance mm : ± 0.15

Rated speed rpm : 2500
 rack travel mm : 11.90
 Tolerance mm : ± 0.15

—————
ADJUSTMENT TEST ADA/ALDA

SETTING

Rated speed rpm : 1400
 Ref. pressure
 ALDA / ADA hPa : 940
 rack travel mm : -0.10
 Tolerance mm : ± 0.10

MEASUREMENT

Rated speed rpm : 1400
Ref. pressure
ALDA / ADA hPa : 900
rack travel mm : -0.40
Tolerance mm : +- 0.10

Ref. pressure
ALDA / ADA hPa : 750
rack travel mm : -1.50
Tolerance mm : +- 0.20

FUEL DELIVERY CHARACTERISTICS

Ref. pressure
ALDA / ADA hPa : 1100
Rated speed rpm : 2300
Del. quantity
cm3/1000 strokes : 39.3
cm3/1000 strokes : +- 0.8
Check tolerance
cm3/1000S. : +- 1.8
Spreed
cm3/1000 strokes : 2.5
Check tolerance
cm3/1000S. : 3.0

Ref. pressure
ALDA / ADA hPa : 1100
Rated speed rpm : 2500
Spreed
Del. quantity
cm3/1000 strokes : 38.0
cm3/1000 strokes : +- 1.0
Check tolerance
cm3/1000S. : +- 2.0
Spreed
cm3/1000 strokes : 2.5
Check tolerance
cm3/1000S. : 3.0

HIGH IDLE

Ref. pressure
ALDA / ADA hPa : 1100
Rated speed rpm : 2700
rack travel mm : 7.50
Tolerance mm : +- 0.30
Del. quantity
cm3/1000 strokes : 14.0
cm3/1000 strokes : +- 2.0
Check tolerance
cm3/1000S. : +- 3.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 21.60
Tolerance mm : +- 1.50
Del. quantity
cm3/1000 strokes : 55.0
cm3/1000 strokes : +- 4.0
Check tolerance
cm3/1000S. : +- 5.0
Spreed
cm3/1000 strokes : 6.0
Check tolerance
cm3/1000S. : 6.0

LOW IDLE

Rated speed rpm : 350
Del. quantity
cm3/1000 strokes : 9.5
Check tolerance
cm3/1000S. : +- 2.3
Spreed
Check tolerance
cm3/1000S. : 1.5

control lever
position degree : > 49.00

control lever
position degree : < 46.50

SETTING PNEUMATIC FAST IDLE (PLA)
(PLA) POSITION

Rated speed rpm : 400
Rack travel in mm : 8.25
Tolerance mm : +- 0.70
Del. quantity
cm3/1000 strokes : 12.0
cm3/1000 strokes : +- 3.5
Check tolerance
cm3/1000S. : +- 4.5
Vacuum hPa : 450.0

ADJUST ACTIVE SURGE DAMPING ARD

Rated speed rpm : 1400
rack travel mm : 1.70
Tolerance mm : \pm 0.15

TESTING PNEUMATIC SHUTOFF DEVICE

Rated speed rpm : 350
Vacuum hPa : -450.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 08.11.96
Test oil : ISO 4113
Combination No. : 0 400 0,6 963
Injection pump
Pump designation : PES6M55C320RS157-1
EP type number : 0 410 056 991
Governor
Governor design. : RSF450/2300M68-1
Governor no. : 0 420 021 141

Cust. part No. :

Customer-spec. information

Customer : MB-NFZ
Motor : OM603A (3.0L)
Power KW : 100.0

TEST BENCH REQUIREMENTS

Test oil inlet temp. °C : 40
Tolerance °C : ± 2.0
Overflow valve : 1 469 990 351
Inlet press. bar : 1.0
Test nozzle holder assembly : 1 688 901 111
Opening pressure bar : 148.5
Tolerance bar : ± 1.5
Test lines : 1 680 750 014
Outside diameter : 6.0
x inside diameter : 2.0
x length mm : 600

F23

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant. per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 2.25
Tolerance mm : ± 0.05
Check tolerance mm : ± 0.10

Rack travel in mm : 21.00
Tolerance mm : ± 1.00

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300

Start of delivery blocking

*NW after s.o.d. : 19.50
Tolerance : ± 0.20
Check tolerance *NW : ± 0.30

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1000

Rack travel in mm : 13.15
Tolerance mm : ± 0.05

Del. quantity cm³/1000 strokes : 48.5

cm³/1000 strokes : ± 0.5

Check tolerance cm³/1000S. : ± 1.5

Speed

cm3/1000 strokes : 2.5

Check tolerance
cm3/1000S. : 3.0

Rated speed rpm : 450

Rack travel in mm : 5.50
Tolerance mm : + 0.10

Del. quantity
cm3/1000 strokes : 7.0
cm3/1000 strokes : + 0.5

Spreed
cm3/1000 strokes : 1.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

IDLE STAGE

Rack travel in mm : 6.50
Tolerance mm : + 0.10

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1000
Ref. pressure
ALDA / ADA hPa : 1850
Del. quantity
cm3/1000 strokes : 48.5
cm3/1000 strokes : + 0.5
Check tolerance
cm3/1000S. : + 1.5
Spreed
cm3/1000 strokes : 2.5
Check tolerance
cm3/1000S. : 3.0

RATED SPEED

control lever
position degree : 50.0

Rated speed rpm : 2500
rack travel mm : 8.60
Tolerance mm : + 0.20

Rated speed rpm : 2950
rack travel mm : 0.50
Tolerance mm : + 0.50

SET IDLE CONTROL LEVER POSITION

Rated speed rpm : 1000
CRT mm max. : 1.95

LOW IDLE

control lever
position degree : 12.0
tolerance degree : + 2.0

Setting point w/out bumper spring
Rated speed rpm : 450
rack travel mm : 5.50

SET IDLE AUXILIARY SPRING

Rated speed rpm : 500
rack travel mm : 4.40
Tolerance mm : + 0.10

rack travel mm : 2.50
Rated speed rpm : 670
Tolerance 1/min : + 50

Load pick-up

Rated speed rpm : 250
rack travel mm : > 12.50

Rated speed rpm : 1000

CRT mm max. : 1.95

rack travel mm : 5.50
Rated speed rpm : 450

TORQUE CONTROL

Rated speed rpm : 1000
rack travel mm : 13.15
Tolerance mm : + 0.05

Rated speed rpm : 1600
rack travel mm : 12.50
Tolerance mm : + 0.10

Rated speed rpm : 2200
rack travel mm : 11.60
Tolerance mm : + 0.10

ADJUSTMENT TEST ADA/ALDA

SETTING

Rated speed rpm : 1000

Ref. pressure
ALDA / ADA hPa : 1400
rack travel mm : -0.60
Tolerance mm : + 0.20

MEASUREMENT

Rated speed rpm : 1000
Ref. pressure
ALDA / ADA hPa : 1100
rack travel mm : -2.45
Tolerance mm : + 0.10

Ref. pressure
ALDA / ADA hPa : 750
rack travel mm : -4.60
Tolerance mm : + 0.20

FUEL DELIVERY CHARACTERISTICS

Ref. pressure
ALDA / ADA hPa : 1850
Rated speed rpm : 1600
Del. quantity
cm³/1000 strokes : 47.3
cm³/1000 strokes : + 0.8
Check tolerance
cm³/1000S. : + 1.8
Spreed
cm³/1000 strokes : 2.5
Check tolerance
cm³/1000S. : 3.0

Ref. pressure
ALDA / ADA hPa : 1850
Rated speed rpm : 2200
Spreed
Del. quantity
cm³/1000 strokes : 45.0
cm³/1000 strokes : + 1.0
Check tolerance
cm³/1000S. : + 2.0
Spreed
cm³/1000 strokes : 2.5
Check tolerance
cm³/1000S. : 3.0

Ref. pressure
ALDA / ADA hPa : 1100
Rated speed rpm : 1000
Del. quantity
cm³/1000 strokes : 37.0
cm³/1000 strokes : + 0.5
Check tolerance
cm³/1000S. : + 1.5
Spreed
cm³/1000 strokes : 2.5

Check tolerance
cm³/1000S. : 3.0

Ref. pressure
ALDA / ADA hPa : 1100
Rated speed rpm : 1000
Del. quantity
cm³/1000 strokes : 37.0
cm³/1000 strokes : + 0.5
Check tolerance
cm³/1000S. : + 1.5
Spreed
cm³/1000 strokes : 2.5
Check tolerance
cm³/1000S. : 3.0

HIGH IDLE

Ref. pressure
ALDA / ADA hPa : 1850
Rated speed rpm : 2500
rack travel mm : 8.60
Tolerance mm : + 0.20
Del. quantity
cm³/1000 strokes : 32.0
cm³/1000 strokes : + 2.0
Check tolerance
cm³/1000S. : + 3.0
Spreed
cm³/1000 strokes : 2.5
Check tolerance
cm³/1000S. : 3.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : > 20.10
Del. quantity
cm³/1000 strokes : 52.0
Spreed
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 6.0

LOW IDLE

Rated speed rpm : 450
Del. quantity
cm³/1000 strokes : 8.3
Check tolerance
cm³/1000S. : + 2.3
Spreed
Check tolerance
cm³/1000S. : 1.5

control lever
position degree : > 35.50

control lever
position degree : < 33.00

SETTING PNEUMATIC FAST IDLE (PLA)
(PLA) POSITION

control lever
position degree : 12.0
tolerance degree : + 2.0

Rated speed rpm : 500

Rack travel in mm : 7.60
Tolerance mm : + 0.80

Del. quantity
cm³/1000 strokes : 19.0
cm³/1000 strokes : + 3.5

Check tolerance
cm³/1000S. : + 4.5
Vacuum hPa : 450.0

TESTING PNEUMATIC SHUTOFF DEVICE

Rated speed rpm : 450
Vacuum hPa : -450.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 14.11.96
Test oil : ISO 4113

Combination No. : 0 401 840 065

Injection pump
Pump designation : PE12P100A320LS828
EP type number : 0 411 800 036

Governor
Governor design. : RQ750PA484R
Governor no. : 0 421 801 104

Cust. part No. :

Customer-spec. information
Customer : MB-NFZ
Motor : OM 404
Power KW : 202.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 1.5

Test nozzle holde
assembly : 0 631 343 009

Opening pressure
bar : 173.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 015

Outside diameter : 6.0

x inside diameter : 1.5
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 3.25
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 12- 1- 5- 9- 8
 : - 3- 4- 11- 10
 : - 2- 6- 7

Phasing : 0-45-60-105-120
 : -165-180-225-240
 : -285-300-345
Tolerance : ± 0.30
Check
tolerance °NW : ± 0.50

Start of delivery mark

Tolerance : ± 0.10
Check
tolerance °NW : ± 0.75

Barrel no. : 12

BASIC SETTING

Rated speed rpm : 700

Rack travel in mm : 12.15
Tolerance mm : ± 0.05

Del. quantity
 cm³/1000 strokes : 98.0

 cm³/1000 strokes : +- 1.0

 Check tolerance
 cm³/1000S. : +- 3.0

 Spreed
 cm³/1000 strokes : 3.0

 Check tolerance
 cm³/1000S. : 6.0

 Rated speed rpm : 250

Rack travel in mm : 8.00
 Tolerance mm : +- 0.10
 Del. quantity
 cm³/1000 strokes : 16.0
 cm³/1000 strokes : +- 3.0
 Check tolerance
 cm³/1000S. : +- 5.5
 Spreed
 cm³/1000 strokes : 3.0
 Check tolerance
 cm³/1000S. : 5.0

(B) SETTING OF INJECTION PUMP
 WITH GOVERNOR

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 700
 Aneroid pressure
 hPa : -
 Del. quantity
 cm³/1000 strokes : 98.0
 cm³/1000 strokes : +- 1.0
 Check tolerance
 cm³/1000S. : +- 3.0
 Spreed
 cm³/1000 strokes : 3.0
 Check tolerance
 cm³/1000S. : 6.0

RATED SPEED

rack travel mm : 11.10
 Rated speed rpm : 753
 Tolerance 1/min : +- 3

 rack travel mm : 5.40
 Rated speed rpm : 780
 Tolerance 1/min : +- 5

rack travel mm : 0.50
 Tolerance mm : +- 0.50
 Rated speed rpm : 900

LOW IDLE

Testing:

Rated speed rpm : 250
 rack travel mm : 8.00
 Tolerance mm : +- 0.10

TORQUE CONTROL

Rated speed rpm : 700
 rack travel mm : 12.15
 Tolerance mm : +- 0.05

BREAKAWAY

Rack travel in mm : 11.10
 Rated speed rpm : 753
 Tolerance 1/min : +- 3

LOW IDLE

Rated speed rpm : 250
 Del. quantity
 cm³/1000 strokes : 16.0
 cm³/1000 strokes : +- 3.0
 Check tolerance
 cm³/1000S. : +- 5.5
 Spreed
 cm³/1000 strokes : 3.0
 Check tolerance
 cm³/1000S. : 5.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 19.11.96
Test oil : ISO 4113

Combination No. : 0 402 646 617

Injection pump
Pump designation : PE6P130A320RS7282
EP type number : 0 412 636 825

Governor
Governor design. : RQV300...900PA1059
Governor no. : 0 421 814 049

Cust. part No. : 865851-P07 V.10.96

Customer-spec. information
Customer : PENTA
Motor : TAD 1230 P

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Vibration damper
(RoBo diaphragm) : 4.2

Test oil inlet temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 077

Inlet press. bar : 1.5
Tolerance bar : ± 0.1

Test nozzle holder assembly : 1 688 901 105

Opening pressure bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 4.05
Tolerance mm : ± 0.05
Check tolerance mm : ± 0.10

Rack travel in mm : 8.30
Tolerance mm : ± 0.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.30
Check tolerance °NW : ± 0.50

Start of delivery mark

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 700

Rack travel in mm : 11.55
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 352.0

cm³/1000 strokes : ± 1.5

Check tolerance
cm³/1000S. : ± 5.0

Speed
cm³/1000 strokes : 7.0

Check tolerance
cm³/1000S. : 11.0

Rated speed rpm : 300

Rack travel in mm : 4.00
Tolerance mm : ± 0.10

Del. quantity
cm³/1000 strokes : 23.0
cm³/1000 strokes : ± 3.0

Check tolerance
cm³/1000S. : ± 6.0

Speed
cm³/1000 strokes : 7.0

Check tolerance
cm³/1000S. : 11.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 300
guide sleeve
travel mm : 1.81
Tolerance mm : ± 0.25

Rated speed rpm : 928
guide sleeve
travel mm : 7.72
Tolerance mm : ± 0.25

Rated speed rpm : 650
guide sleeve
travel mm : 5.16
Tolerance mm : ± 0.25

Rated speed rpm : 315
guide sleeve
travel mm : 1.98
Tolerance mm : ± 0.25

Rated speed rpm : 365
guide sleeve
travel mm : 2.54
Tolerance mm : ± 0.25

Rated speed rpm : 420
guide sleeve
travel mm : 3.17
Tolerance mm : ± 0.25

Rated speed rpm : 1210
guide sleeve
travel mm : 11.50
Tolerance mm : ± 0.50

GUIDE SLEEVE POSITION

Rated speed rpm : 980

Rack travel in mm : 16.50
Tolerance mm : ± 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 700
Aneroid pressure
hPa : 2000

Del. quantity
cm³/1000 strokes : 352.0
cm³/1000 strokes : ± 1.5

Check tolerance
cm³/1000S. : ± 5.0

Speed
cm³/1000 strokes : 7.0

Check tolerance
cm³/1000S. : 11.0

CONTROL LEVER

control lever
position degree : 61.0
tolerance degree : ± 4.0

control lever
position degree : 117.0
tolerance degree : ± 4.0

RATED SPEED

rack travel mm : 10.50
Rated speed rpm : 915
Tolerance 1/min : ± 5

rack travel mm : 4.00
Rated speed rpm : 1000
Tolerance 1/min : ± 15

rack travel mm : 0.50
Tolerance mm : ± 0.50
Rated speed rpm : 1100

LOW IDLE

control lever
position degree : 74.0
tolerance degree : ± 4.0

control lever
position degree : 18.0
tolerance degree : ± 4.0

Testing:

Rated speed rpm : 300
rack travel mm : 4.00
Tolerance mm : ± 0.10

rack travel mm : > 5.60
Rated speed rpm : 200

Rated speed rpm : 365

TORQUE CONTROL

Rated speed rpm : 700
rack travel mm : 11.55
Tolerance mm : ± 0.05

ANEROID/ALTITUDE
COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 2000
rack travel mm : 11.55
Tolerance mm : ± 0.05

MEASUREMENT

Pressure hPa : -
Rated speed rpm : 500
rack travel mm : 8.25
Tolerance mm : ± 0.10

Rated speed rpm : 500

Pressure hPa : 1420
rack travel mm : 3.00
Tolerance mm : ± 0.20

Pressure hPa : 640
rack travel mm : 0.25
Tolerance mm : ± 0.05

G03

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : -
Rated speed rpm : 700
Del. quantity
cm³/1000 strokes : 230.0
cm³/1000 strokes : ± 1.5
Check tolerance
cm³/1000s. : ± 5.0

BREAKAWAY

Rack travel in mm : 10.50
Rated speed rpm : 915
Tolerance 1/min : ± 5

LOW IDLE

Rated speed rpm : 300
Del. quantity
cm³/1000 strokes : 23.0
cm³/1000 strokes : ± 3.0
Check tolerance
cm³/1000s. : ± 6.0
Speed
cm³/1000 strokes : 7.0
Check tolerance
cm³/1000s. : 11.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 14.11.96
Test oil : ISO 4113
Combination No. : 0 402 648 967
Injection pump
Pump designation : PE8P120A320LS7871
EP type number : 0 412 628 877
Governor
Governor design. : RQV300...1050PA1078
: -1K
Governor no. : 0 421 815 361
Cust. part No. : 9275447

Customer-spec. information
Customer : LIEBHERR
Motor : D 9408 TI
Power KW : 400.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1
Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0
Overflow valve : 1 417 413 025
Inlet press. bar : 1.5
Tolerance bar : ± 0.1
Test nozzle holder
assembly : 1 688 901 105
Opening pressure
bar : 208.5
Tolerance bar : ± 1.5
Test lines : 1 680 750 075

G04

Outside diameter : 8.0
x inside diameter : 3.0
x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0
Prestroke mm : 3.65
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10
Rack travel in mm : 10.50
Tolerance mm : ± 1.50
Firing order : 1- 8- 7- 2- 6
: - 3- 5- 4
Phasing : 0-45-90-135-180
: -225-270-315
Tolerance : ± 0.30
Check
tolerance °NW : ± 0.50

BASIC SETTING

Rated speed rpm : 1050
Rack travel in mm : 11.85
Tolerance mm : ± 0.05
Del. quantity
cm³/1000 strokes : 277.5
cm³/1000 strokes : ± 1.0
Check tolerance
cm³/1000S. : ± 4.0
Speed
cm³/1000 strokes : 5.0

Check tolerance
 cm³/1000S. : 9.0
 Rated speed rpm : 300
 Rack travel in mm : 5.40
 Tolerance mm : +- 0.10
 Del. quantity
 cm³/1000 strokes : 23.0
 cm³/1000 strokes : +- 3.0
 Check tolerance
 cm³/1000S. : +- 6.0
 Spreed
 cm³/1000 strokes : 6.0
 Check tolerance
 cm³/1000S. : 10.0

(B) SETTING OF INJECTION PUMP
 WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 300
 guide sleeve
 travel mm : 1.69
 Tolerance mm : +- 0.25
 Rated speed rpm : 1117
 guide sleeve
 travel mm : 10.38
 Tolerance mm : +- 0.25
 Rated speed rpm : 746
 guide sleeve
 travel mm : 6.20
 Tolerance mm : +- 0.25
 Rated speed rpm : 353
 guide sleeve
 travel mm : 2.45
 Tolerance mm : +- 0.25
 Rated speed rpm : 403
 guide sleeve
 travel mm : 3.18
 Tolerance mm : +- 0.25
 Rated speed rpm : 450
 guide sleeve
 travel mm : 3.66
 Tolerance mm : +- 0.25
 Rated speed rpm : 1320
 guide sleeve
 travel mm : 13.50
 Tolerance mm : +- 0.50

GUIDE SLEEVE POSITION

Rated speed rpm : 1185
 Rack travel in mm : 10.80
 Tolerance mm : +- 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1050
 Aneroid pressure
 hPa : -
 Del. quantity
 cm³/1000 strokes : 277.5
 cm³/1000 strokes : +- 1.0
 Check tolerance
 cm³/1000S. : +- 4.0
 Spreed
 cm³/1000 strokes : 5.0
 Check tolerance
 cm³/1000S. : 9.0

CONTROL LEVER

control lever
 position degree : 121.0
 tolerance degree : +- 4.0

RATED SPEED

rack travel mm : 10.85
 Rated speed rpm : 1105
 Tolerance 1/min : +- 5
 rack travel mm : 4.00
 Rated speed rpm : 1185
 Tolerance 1/min : +- 15
 rack travel mm : 0.50
 Tolerance mm : +- 0.50
 Rated speed rpm : 1300

LOW IDLE

control lever
 position degree : 74.0
 tolerance degree : +- 4.0

Testing:

Rated speed rpm : 300
 rack travel mm : 5.40

Tolerance mm : + 0.10
Rated speed rpm : 200
CRT mm min. : > 7.60
Rated speed rpm : 400

TORQUE CONTROL

Rated speed rpm : 1050
rack travel mm : 11.85
Tolerance mm : + 0.05

Rated speed rpm : 800
rack travel mm : 11.60
Tolerance mm : + 0.10

Rated speed rpm : 500
rack travel mm : 9.75
Tolerance mm : + 0.10

Rated speed rpm : 950
rack travel mm : 11.75
Tolerance mm : + 0.10

Rated speed rpm : 600
rack travel mm : 10.40
Tolerance mm : + 0.10

ANEROID/ALTITUDE
COMPENSATOR TEST

SETTING

Rated speed rpm : 1050
Pressure hPa : 1600
rack travel mm : 11.85
Tolerance mm : + 0.05

MEASUREMENT

Pressure hPa : -
Rated speed rpm : 1050
rack travel mm : 9.35
Tolerance mm : + 0.10

Rated speed rpm : 1050

Pressure hPa : 725
rack travel mm : 11.00
Tolerance mm : + 0.05

Pressure hPa : 525
rack travel mm : 9.65
Tolerance mm : + 0.10

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : -
Rated speed rpm : 800
Del. quantity
cm³/1000 strokes : 294.0
cm³/1000 strokes : + 3.0
Check tolerance
cm³/1000S. : + 6.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 271.0
cm³/1000 strokes : + 3.0
Check tolerance
cm³/1000S. : + 6.0

Aneroid pressure
hPa : -
Rated speed rpm : 550
Del. quantity
cm³/1000 strokes : 247.5
cm³/1000 strokes : + 1.0
Check tolerance
cm³/1000S. : + 4.0
Speed
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

BREAKAWAY

Rack travel in mm : 10.85
Rated speed rpm : 1105
Tolerance 1/min : + 5

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 9.40
Tolerance mm : + 0.20
Del. quantity
cm³/1000 strokes : 160.0
cm³/1000 strokes : + 10.0
Check tolerance
cm³/1000S. : + 14.0

LOW IDLE

Rated speed rpm : 300
Del. quantity
cm³/1000 strokes : 23.0
cm³/1000 strokes : ± 3.0
Check tolerance
cm³/1000S. : ± 6.0
Spreed
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 10.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 15.11.96
Test oil : ISO 4113
Combination No. : 0 402 648 967A
Injection pump
Pump designation : PE8P120A320LS7871
EP type number : 0 412 628 877
Governor
Governor design. : RQV300...1050PA1078
: -1K
Governor no. : 0 421 815 361
Cust. part No. : 9275447

Customer-spec. information
Customer : LIEBHERR
Motor : D 9408 TI
Power KW : 400.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1
Test oil inlet
temp. °C : 40
Tolerance °C : + 2.0
Overflow valve : 1 417 413 025
Inlet press. bar : 1.5
Tolerance bar : + 0.1
Test nozzle holder
assembly : 1 688 901 105
Opening pressure
bar : 208.5
Tolerance bar : + 1.5
Test lines : 1 680 750 075

G08

Outside diameter : 8.0
x inside diameter : 3.0
x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : + 1.0
Prestroke mm : 3.65
Tolerance mm : + 0.05
Check
tolerance mm : + 0.10
Rack travel in mm : 10.50
Tolerance mm : + 1.50
Firing order : 1- 8- 7- 2- 6
: - 3- 5- 4
Phasing : 0-45-90-135-180
: -225-270-315
Tolerance : + 0.30
Check
tolerance °NW : + 0.50

BASIC SETTING

Rated speed rpm : 1050
Rack travel in mm : 11.85
Tolerance mm : + 0.05
Del. quantity
cm³/1000 strokes : 277.5
cm³/1000 strokes : + 1.0
Check tolerance
cm³/1000S. : + 4.0
Speed
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

Rated speed rpm : 300

Rack travel in mm : 5.40

Tolerance mm : ± 0.10

Del. quantity

cm³/1000 strokes : 23.0

cm³/1000 strokes : ± 3.0

Check tolerance

cm³/1000S. : ± 6.0

Spread

cm³/1000 strokes : 6.0

Check tolerance

cm³/1000S. : 10.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 300

guide sleeve

travel mm : 1.69

Tolerance mm : ± 0.25

Rated speed rpm : 1117

guide sleeve

travel mm : 10.38

Tolerance mm : ± 0.25

Rated speed rpm : 746

guide sleeve

travel mm : 6.20

Tolerance mm : ± 0.25

Rated speed rpm : 353

guide sleeve

travel mm : 2.45

Tolerance mm : ± 0.25

Rated speed rpm : 403

guide sleeve

travel mm : 3.18

Tolerance mm : ± 0.25

Rated speed rpm : 450

guide sleeve

travel mm : 3.66

Tolerance mm : ± 0.25

Rated speed rpm : 1320

guide sleeve

travel mm : 13.50

Tolerance mm : ± 0.50

G09

GUIDE SLEEVE POSITION

Rated speed rpm : 1185

Rack travel in mm : 10.80

Tolerance mm : ± 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1050

Aneroid pressure

hPa : -

Del. quantity

cm³/1000 strokes : 277.5

cm³/1000 strokes : ± 1.0

Check tolerance

cm³/1000S. : ± 4.0

Spread

cm³/1000 strokes : 5.0

Check tolerance

cm³/1000S. : 9.0

CONTROL LEVER

control lever

position degree : 121.0

tolerance degree : ± 4.0

RATED SPEED

rack travel mm : 10.85

Rated speed rpm : 1105

Tolerance 1/min : ± 5

rack travel mm : 4.00

Rated speed rpm : 1185

Tolerance 1/min : ± 15

rack travel mm : 0.50

Tolerance mm : ± 0.50

Rated speed rpm : 1300

LOW IDLE

control lever

position degree : 74.0

tolerance degree : ± 4.0

Testing:

Rated speed rpm : 300

rack travel mm : 5.40

Tolerance mm : + 0.10
 Rated speed rpm : 200
 CRT mm min. : > 7.60
 Rated speed rpm : 400

TORQUE CONTROL

Rated speed rpm : 1050
 rack travel mm : 11.85
 Tolerance mm : + 0.05

Rated speed rpm : 800
 rack travel mm : 11.60
 Tolerance mm : + 0.10

Rated speed rpm : 500
 rack travel mm : 9.75
 Tolerance mm : + 0.10

Rated speed rpm : 950
 rack travel mm : 11.75
 Tolerance mm : + 0.10

Rated speed rpm : 600
 rack travel mm : 10.40
 Tolerance mm : + 0.10

ANEROID/ALTITUDE
 COMPENSATOR TEST

SETTING

Rated speed rpm : 1050
 Pressure hPa : 1600
 rack travel mm : 11.85
 Tolerance mm : + 0.05

MEASUREMENT

Pressure hPa : -
 Rated speed rpm : 1050
 rack travel mm : 9.35
 Tolerance mm : + 0.10

Rated speed rpm : 1050

Pressure hPa : 725
 rack travel mm : 11.00
 Tolerance mm : + 0.05

Pressure hPa : 525
 rack travel mm : 9.65
 Tolerance mm : + 0.10

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
 hPa : -
 Rated speed rpm : 800
 Del. quantity
 cm³/1000 strokes : 294.0
 cm³/1000 strokes : + 3.0
 Check tolerance
 cm³/1000S. : + 6.0

Aneroid pressure
 hPa : -
 Rated speed rpm : 500
 Del. quantity
 cm³/1000 strokes : 271.0
 cm³/1000 strokes : + 3.0
 Check tolerance
 cm³/1000S. : + 6.0

Aneroid pressure
 hPa : -
 Rated speed rpm : 550
 Del. quantity
 cm³/1000 strokes : 247.5
 cm³/1000 strokes : + 1.0
 Check tolerance
 cm³/1000S. : + 4.0
 Spreed
 cm³/1000 strokes : 8.0
 Check tolerance
 cm³/1000S. : 12.0

BREAKAWAY

Rack travel in mm : 10.85
 Rated speed rpm : 1105
 Tolerance 1/min : + 5

STARTING FUEL DELIVERY

Rated speed rpm : 100
 rack travel mm : 9.40
 Tolerance mm : + 0.20
 Del. quantity
 cm³/1000 strokes : 160.0
 cm³/1000 strokes : + 10.0
 Check tolerance
 cm³/1000S. : + 14.0

LOW IDLE

Rated speed rpm : 300
Del. quantity
cm³/1000 strokes : 23.0
cm³/1000 strokes : ± 3.0
Check tolerance
cm³/1000S. : ± 6.0
Spreed
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 10.0

End of test specification sheet



BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 20.11.96
Test oil : ISO 4113
Combination No. : 0 402 670 812
Injection pump
Pump designation : PE12P120A320LS7902
EP type number : 0 412 620 848
Governor
Governor design. : RSV350...1050POA662
Governor no. : 0 421 833 579

Cust. part No. : 027 074 4302

Customer-spec. information
Customer : MB-NFZ
Motor : OM 444 LA
Power KW : 448.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1
Test oil inlet temp. °C : 40
Tolerance °C : +- 2.0
Overflow valve : 1 417 413 077
Inlet press. bar : 1.5
Overflow quantity
min. l/h : 110
Tolerance l/h : +- 10.0
Test nozzle holder assembly : 1 688 901 105
Opening pressure
bar : 208.5
Tolerance bar : +- 1.5

Test lines : 1 680 750 075
Outside diameter : 8.0
x inside diameter : 3.0
x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : +- 1.0
Prestroke mm : 5.25
Tolerance mm : +- 0.05
Check tolerance mm : +- 0.10
Rack travel in mm : 20.50
Tolerance mm : +- 0.50
Firing order : 12- 1- 5- 9- 8
 : - 3- 4- 11- 10
 : - 2- 6- 7
Phasing : 0-45-60-105-120
 : -165-180-225-240
 : -285-300-345
Tolerance : +- 0.30
Check tolerance °NW : +- 0.50
Start of delivery mark
Tolerance : +- 0.10
Check tolerance °NW : +- 0.75
Barrel no. : 12

BASIC SETTING

Rated speed rpm : 1030

Rack travel in mm : 14.50
 Tolerance mm : +- 0.05

 Del. quantity
 cm³/1000 strokes : 214.0

 cm³/1000 strokes : +- 1.0

 Check tolerance
 cm³/1000S. : +- 4.0

 Spreed
 cm³/1000 strokes : 5.0

 Check tolerance
 cm³/1000S. : 9.0

 Rated speed rpm : 350

 Rack travel in mm : 6.20
 Tolerance mm : +- 0.10
 Del. quantity
 cm³/1000 strokes : 19.0
 cm³/1000 strokes : +- 3.0
 Check tolerance
 cm³/1000S. : +- 6.0
 Spreed
 cm³/1000 strokes : 8.0
 Check tolerance
 cm³/1000S. : 12.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE POSITION

Rated speed rpm : 800
 Rack travel in mm : 0.50
 Tolerance mm : +- 0.20
 governor spring
 pre-tension
 click setting x : 4.00

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1030
 Aneroid pressure
 hPa : 1250
 Del. quantity
 cm³/1000 strokes : 214.0
 cm³/1000 strokes : +- 1.0

Check tolerance
 cm³/1000S. : +- 4.0
 Spreed
 cm³/1000 strokes : 5.0
 Check tolerance
 cm³/1000S. : 9.0

CONTROL LEVER

control lever
 position degree : 94.0
 tolerance degree : +- 4.0

ASSEMBLY GOVERNOR SETTING

Rated speed rpm : 1070
 rack travel mm : 13.50
 Rated speed rpm : 1160
 Tolerance 1/min : +- 4
 rack travel mm : 4.00
 rack travel mm : 0.85
 Tolerance mm : +- 0.55
 Rated speed rpm : 1350
 Rated speed rpm : 1071
 rack travel mm : 13.50
 Rated speed rpm : 1161
 Tolerance 1/min : +- 4
 rack travel mm : 4.00
 rack travel mm : 0.85
 Tolerance mm : +- 0.55
 Rated speed rpm : 1072
 rack travel mm : 13.50
 Rated speed rpm : 1162
 Tolerance 1/min : +- 4
 rack travel mm : 4.00
 rack travel mm : 0.85
 Tolerance mm : +- 0.55
 Rated speed rpm : 1073
 rack travel mm : 13.50
 Rated speed rpm : 1163
 Tolerance 1/min : +- 4
 rack travel mm : 4.00
 rack travel mm : 0.85
 Tolerance mm : +- 0.55
 Rated speed rpm : 1074

rack travel mm : 13.50
 Rated speed rpm : 1164
 Tolerance 1/min : +- 4
 rack travel mm : 4.00
 rack travel mm : 0.85
 Tolerance mm : +- 0.55
 Rated speed rpm : 1350
 Rated speed rpm : 1075
 rack travel mm : 13.50
 Rated speed rpm : 1165
 Tolerance 1/min : +- 4
 rack travel mm : 4.00
 rack travel mm : 0.85
 Tolerance mm : +- 0.55

LOW IDLE

control lever
 position degree : 71.0
 tolerance degree : +- 4.0

Testing:

Rated speed rpm : 350
 rack travel mm : 6.20
 Tolerance mm : +- 0.10
 rack travel mm : 2.00
 Rated speed rpm : 405
 Tolerance 1/min : +- 30
 Rated speed rpm : 100
 CRT mm min. : > 9.30

SET IDLE AUXILIARY SPRING

rack travel mm : 2.00

TORQUE CONTROL

Rated speed rpm : 1030
 rack travel mm : 14.50
 Tolerance mm : +- 0.05
 Rated speed rpm : 800
 rack travel mm : 14.50
 Tolerance mm : +- 0.10

ANEROID/ALTITUDE
COMPENSATOR TEST

SETTING

Rated speed rpm : 500
 Pressure hPa : 1250
 rack travel mm : 4.70
 Tolerance mm : +- 0.20

MEASUREMENT

Pressure hPa : -
 Rated speed rpm : 500
 Rated speed rpm : 500
 Pressure hPa : 300
 rack travel mm : 1.10
 Tolerance mm : +- 0.05
 Pressure hPa : 650
 rack travel mm : 4.05
 Tolerance mm : +- 0.20

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
 hPa : 1250
 Rated speed rpm : 800
 Del. quantity
 cm3/1000 strokes : 216.0
 cm3/1000 strokes : +- 3.0
 Check tolerance
 cm3/1000S. : +- 6.0
 Spreed
 cm3/1000 strokes : 8.0
 Check tolerance
 cm3/1000S. : 12.0
 Aneroid pressure
 hPa : -
 Rated speed rpm : 500
 Del. quantity
 cm3/1000 strokes : 135.0
 cm3/1000 strokes : +- 1.0
 Check tolerance
 cm3/1000S. : +- 4.0
 Spreed
 cm3/1000 strokes : 8.0
 Check tolerance
 cm3/1000S. : 12.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 220.0
cm³/1000 strokes : ± 15.0
Check tolerance
cm³/1000s. : ± 19.0

LOW IDLE

Rated speed rpm : 350
Del. quantity
cm³/1000 strokes : 19.0
cm³/1000 strokes : ± 3.0
Check tolerance
cm³/1000s. : ± 6.0
Speed
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000s. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 19.11.96
Test oil : ISO 4113

Combination No. : 0 402 698 033

Injection pump
Pump designation : PE8H120/320LS3-2
EP type number : 0 412 628 003

Governor
Governor design. : RE36
Governor no. : 0 421 890 359

Cust. part No. : 0250745602

Customer-spec. information
Customer : MB-NFZ
Motor : OM 442 LA

TEST BENCH REQUIREMENTS

Inlet line : 3.2 ELAB

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 082

Inlet press. bar : 3.0
Tolerance bar : ± 0.1

Test nozzle holde
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 600

REMARKS

Pump-specific values
in Section (B)
must be observed!

(A) INJECTION PUMP SETTINGS
No basic setting.
Setting of constant delivery
under Section C.

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 7.00
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 0.50

Firing order : 8- 7- 2- 6- 3
: - 5- 4- 1

Phasing : 0-45-90-135-180
: -225-270-315
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery mark

Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Barrel no. : 8

(B) POSITIONER TESTING
Warm-up time: 3 minutes at
n=600 min⁻¹, Uact = 2.5 V

TESTING & SETTING RACK TRAVEL SENSOR POSITION

Engine speed min-1: 0

Setting point
(P, R and H pump)

Uact V : 3.100
 CRT mm : 13.00
 Tolerance mm : +/- 0.05
 Check tolerance mm : +/- 0.10

Check value
(P, R and H pump)

Uact V : 1.700
 CRT mm : 6.15
 Tolerance mm : +/- 0.25
 Check tolerance mm : +/- 0.30

Setting point
(M pump)

Uact V : 3.100
 CRT mm : 12.50
 Tolerance mm : +/- 0.05
 Check tolerance mm : +/- 0.10

Check value
(M pump)

Uact V : 1.700
 CRT mm : 5.50
 Tolerance mm : +/- 0.25
 Check tolerance mm : +/- 0.30

Stop position

Uact V : Value with
 deenergised adjusting magnet
 and control rod in
 stop position.

CRT mm : 0.75
 Tolerance mm : +/- 0.25
 Check tolerance mm : +/- 0.35

ENGINE-SPEED SENSOR
(ALL P and R pumps not
 H and M pumps)

Test with control rod
 in stop position

Engine speed min-1: 60
 Amplitude V : 1.4
 Tolerance V : +/- 0.6
 Check tolerance V : +/- 1.20

Engine speed min-1: 600
 Difference
 Amplitude to
 Amplitude V : max.1.4

(C) INJECTION PUMP WITH POSITIONER

TEST POINT V1

Rated speed rpm : 750
 Uact V : 2.800
 Prestroke solenoid
 Stroke mm : 7.40
 Del. quantity
 cm³/1000 strokes : 341.0
 cm³/1000 strokes : +/- 1.0
 Check tolerance
 cm³/1000S. : +/- 4.0
 Spreed
 cm³/1000 strokes : 5.0
 Check tolerance
 cm³/1000S. : 9.0

FUEL DELIVERY CHARACTERISTICS

Rated speed rpm : 950
 Uact V : 2.900
 Prestroke solenoid
 Stroke mm : 8.00
 Del. quantity
 cm³/1000 strokes : 328.0
 cm³/1000 strokes : +/- 3.0
 Check tolerance
 cm³/1000S. : +/- 6.0

Rated speed rpm : 550
 Uact V : 2.700
 Prestroke solenoid
 Stroke mm : 9.50
 Del. quantity
 cm³/1000 strokes : 348.0
 cm³/1000 strokes : +/- 3.0
 Check tolerance
 cm³/1000S. : +/- 6.0

Rated speed rpm : 630
 Uact V : 2.000
 Prestroke solenoid
 Stroke mm : 5.30

Del. quantity
cm³/1000 strokes : 201.0

TEST POINT L1

Rated speed rpm : 300
Uact V : 1.500
Tolerance Volt : +- 0.060
Check tolerance
Volt : +- 0.060
Prestroke solenoid
Stroke mm : 8.00
Del. quantity
cm³/1000 strokes : 31.0
cm³/1000 strokes : +- 3.0
Spreed
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 9.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
Uact V : 1.900
Prestroke solenoid
Stroke mm : 10.00
Del. quantity
cm³/1000 strokes : 108.0
cm³/1000 strokes : +- 10.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 19.11.96
Test oil : ISO 4113
Combination No. : 0 402 746 609C
Injection pump
Pump designation : PES6P130A72ORS7411
EP type number : 0 412 736 808
Governor
Governor design. : RQ275/950PA1274
Governor no. : 0 421 801 807

Cust. part No. : 221 575

Customer-spec. information
Customer : RABA
Motor : siehe Bemerkung

TEST BENCH REQUIREMENTS

Inlet line : 4.2
Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0
Overflow valve : 1 417 413 047
Inlet press. bar : 1.5
Tolerance bar : ± 0.1
Test nozzle holde
assembly : 1 688 901 105
Opening pressure
bar : 208.5
Tolerance bar : ± 1.5
Test lines : 1 680 750 089
Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0
Prestroke mm : 5.50
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10
Rack travel in mm : 20.50
Tolerance mm : ± 0.50
Firing order : 1- 5- 3- 6- 2-
: 4
Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.30
Check
tolerance °NW : ± 0.50
Start of delivery mark
Tolerance : ± 0.10
Check
tolerance °NW : ± 0.75
Barrel no. : 1

BASIC SETTING

Rated speed rpm : 600
Rack travel in mm : 13.10
Tolerance mm : ± 0.05
Del. quantity
cm³/1000 strokes : 263.0

cm³/1000 strokes : + 1.0

 Check tolerance
 cm³/1000S. : + 4.0

 Spreed
 cm³/1000 strokes : 5.0

 Check tolerance
 cm³/1000S. : 9.0

 Rated speed rpm : 275

 Rack travel in mm : 4.20
 Tolerance mm : + 0.10
 Del. quantity
 cm³/1000 strokes : 24.0
 cm³/1000 strokes : + 3.0
 Check tolerance
 cm³/1000S. : + 6.0
 Spreed
 cm³/1000 strokes : 8.0
 Check tolerance
 cm³/1000S. : 12.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 275
 guide sleeve
 travel mm : 2.17
 Tolerance mm : + 0.20

 Rated speed rpm : 1111
 guide sleeve
 travel mm : 6.54
 Tolerance mm : + 0.15

 Rated speed rpm : 1050
 guide sleeve
 travel mm : 6.00
 Tolerance mm : + 0.10

 Rated speed rpm : 354
 guide sleeve
 travel mm : 4.34
 Tolerance mm : + 0.10

 Rated speed rpm : 450
 guide sleeve
 travel mm : 6.00
 Tolerance mm : + 0.10

 Rated speed rpm : 1300

guide sleeve
 travel mm : 11.50
 Tolerance mm : + 0.50

GUIDE SLEEVE POSITION

Rated speed rpm : 1155

 Rack travel in mm : 12.10
 Tolerance mm : + 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 600
 Aneroid pressure
 hPa : 1500
 Del. quantity
 cm³/1000 strokes : 263.0
 cm³/1000 strokes : + 1.0
 Check tolerance
 cm³/1000S. : + 4.0
 Spreed
 cm³/1000 strokes : 5.0
 Check tolerance
 cm³/1000S. : 9.0

CONTROL LEVER

control lever
 position degree : 34.0
 tolerance degree : + 4.0

 control lever
 position degree : 95.0
 tolerance degree : + 4.0

RATED SPEED

rack travel mm : 12.10
 Rated speed rpm : 1095
 Tolerance 1/min : + 5

 rack travel mm : 4.00
 Rated speed rpm : 1190
 Tolerance 1/min : + 15

 rack travel mm : 0.50
 Tolerance mm : + 0.50
 Rated speed rpm : 1300

LOW IDLE

control lever
position degree : 73.0
tolerance degree : ± 4.0

control lever
position degree : 11.0
tolerance degree : ± 4.0

Testing:

Rated speed rpm : 275
rack travel mm : 4.20
Tolerance mm : ± 0.10

rack travel mm : 2.00
Rated speed rpm : 335
Tolerance 1/min : ± 20

Rated speed rpm : 175

CRT mm min. : > 6.80

TORQUE CONTROL

Rated speed rpm : 600
rack travel mm : 13.10
Tolerance mm : ± 0.05

Rated speed rpm : 1050
rack travel mm : 13.10
Tolerance mm : ± 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 1500
rack travel mm : 13.10
Tolerance mm : ± 0.05

MEASUREMENT

Pressure hPa : -
Rated speed rpm : 500
rack travel mm : 8.20
Tolerance mm : ± 0.20

Rated speed rpm : 500

Pressure hPa : 380
rack travel mm : 9.85
Tolerance mm : ± 0.15

Pressure hPa : 600

rack travel mm : 12.05
Tolerance mm : ± 0.05

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1500
Rated speed rpm : 1050
Del. quantity
cm³/1000 strokes : 252.0
cm³/1000 strokes : ± 3.0
Check tolerance
cm³/1000S. : ± 6.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 147.0
cm³/1000 strokes : ± 2.0
Check tolerance
cm³/1000S. : ± 4.0

BREAKAWAY

Rack travel in mm : 12.10
Rated speed rpm : 1095
Tolerance 1/min : ± 5

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.50
Del. quantity
cm³/1000 strokes : 110.0
cm³/1000 strokes : ± 20.0
Check tolerance
cm³/1000S. : ± 24.0

LOW IDLE

Rated speed rpm : 275
Del. quantity
cm³/1000 strokes : 24.0
cm³/1000 strokes : ± 3.0
Check tolerance
cm³/1000S. : ± 6.0
Speed
cm³/1000 strokes : 8.0

Check tolerance
cm³/1000S. : 12.0

End of test specification sheet



BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 14.11.96
Test oil : ISO 4113

Combination No. : 0 402 746 627

Injection pump
Pump designation : PES6P120A720LS7262
: -1
EP type number : 0 412 726 918

Governor
Governor design. : RQV350...925PA1331
Governor no. : 0 421 814 190

Cust. part No. : 0240746202

Customer-spec. information

Customer : MTU
Motor : 6R183-02

TEST BENCH REQUIREMENTS

Inlet line : 4.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 047

Inlet press. bar : 1.5
Tolerance bar : ± 0.1

Tolerance l/h : ± 10.0

Test nozzle holde
assembly : 1 688 901 019

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 075

G23

Outside diameter : 8.0
x inside diameter : 3.0
x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 4.02
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 20.50
Tolerance mm : ± 0.50

Firing order : 6- 2- 4- 1- 5-
: 3

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.30
Check
tolerance °NW : ± 0.50

Start of delivery mark

Tolerance : ± 0.10
Check
tolerance °NW : ± 0.75

Barrel no. : 6

BASIC SETTING

Rated speed rpm : 925

Rack travel in mm : 12.30
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 261.0

cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : ± 4.0

Spreed
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

Rated speed rpm : 350

Rack travel in mm : 5.20
Tolerance mm : ± 0.10
Del. quantity
cm³/1000 strokes : 21.0
cm³/1000 strokes : ± 3.0
Check tolerance
cm³/1000S. : ± 6.0
Spreed
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 350
guide sleeve
travel mm : 1.48
Tolerance mm : ± 0.20

Rated speed rpm : 988
guide sleeve
travel mm : 8.65
Tolerance mm : ± 0.15

Rated speed rpm : 485
guide sleeve
travel mm : 3.02
Tolerance mm : ± 0.25

Rated speed rpm : 1160
guide sleeve
travel mm : 11.50
Tolerance mm : ± 0.50

GUIDE SLEEVE POSITION

Rated speed rpm : 1028

Rack travel in mm : 11.30
Tolerance mm : ± 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 925
Aneroid pressure
hPa : 1200
Del. quantity
cm³/1000 strokes : 261.0
cm³/1000 strokes : ± 1.0
Check tolerance
cm³/1000S. : ± 4.0
Spreed
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. : 9.0

CONTROL LEVER

control lever
position degree : 120.0
tolerance degree : ± 4.0

RATED SPEED

rack travel mm : 11.30
Rated speed rpm : 975
Tolerance 1/min : ± 5

rack travel mm : 4.00
Rated speed rpm : 1043
Tolerance 1/min : ± 15

rack travel mm : 0.50
Tolerance mm : ± 0.50
Rated speed rpm : 1250

LOW IDLE

control lever
position degree : 66.0
tolerance degree : ± 4.0

Testing:

Rated speed rpm : 350
rack travel mm : 5.20
Tolerance mm : ± 0.10

Rated speed rpm : 250

CRT mm min. : > 7.53

Rated speed rpm : 450

TORQUE CONTROL

Rated speed rpm : 925
rack travel mm : 12.30
Tolerance mm : ± 0.05

Rated speed rpm : 750
rack travel mm : 12.30
Tolerance mm : ± 0.05

ANEROID/ALTITUDE
COMPENSATOR TEST

SETTING

Rated speed rpm : 600
Pressure hPa : 1200
rack travel mm : 12.30
Tolerance mm : ± 0.05

MEASUREMENT

Pressure hPa : -
Rated speed rpm : 600
rack travel mm : 8.00
Tolerance mm : ± 0.10

Rated speed rpm : 600

Pressure hPa : 300
rack travel mm : 8.90
Tolerance mm : ± 0.05

Pressure hPa : 800
rack travel mm : 11.60
Tolerance mm : ± 0.15

START CUT-OUT

Rated speed rpm : > 100
Rated speed rpm : < 270

Check speed 1/min : > 80
Check speed 1/min : < 290

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1200
Rated speed rpm : 750

Del. quantity
cm³/1000 strokes : 257.0
cm³/1000 strokes : ± 2.0
Check tolerance
cm³/1000S. : ± 5.0
Spreed
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 132.5
cm³/1000 strokes : ± 1.0
Check tolerance
cm³/1000S. : ± 4.0
Spreed
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

BREAKAWAY

Rack travel in mm : 11.30
Rated speed rpm : 975
Tolerance 1/min : ± 5

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 16.50
Tolerance mm : ± 0.20
Del. quantity
cm³/1000 strokes : 400.0
cm³/1000 strokes : ± 10.0
Check tolerance
cm³/1000S. : ± 14.0

LOW IDLE

Rated speed rpm : 350
Del. quantity
cm³/1000 strokes : 21.0
cm³/1000 strokes : ± 3.0
Check tolerance
cm³/1000S. : ± 6.0
Spreed
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 18.11.96
 Test oil : ISO 4113
 Combination No. : 0 403 476 116
 Injection pump
 Pump designation : PES6MW100/720RS1131
 EP type number : 0 413 406 123
 Governor
 Governor design. : RSV350...1300MWOA329
 : -14
 Governor no. : 0 420 085 192
 Cust. part No. : 0220742202

Customer-spec. information
 Customer : MB-NFZ
 Motor : OM 366 A
 Power KW : 125.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1
 Test oil inlet
 temp. °C : 40
 Tolerance °C : ± 2.0
 Overflow valve : 1 419 992 198
 Inlet press. bar : 1.5
 Test nozzle holder
 assembly : 1 688 901 101
 Opening pressure
 bar : 208.5
 Tolerance bar : ± 1.5
 Test lines : 1 680 750 089
 Outside diameter : 8.0

x inside diameter : 3.0
 x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure bar : 31.0
 Tolerance bar : ± 1.0
 Prestroke mm : 3.75
 Tolerance mm : ± 0.05
 Check
 tolerance mm : ± 0.10
 Rack travel in mm : 10.50
 Tolerance mm : ± 1.50
 Firing order : 1- 5- 3- 6- 2-
 : 4
 Phasing : 0-60-120-180-240
 : -300
 Tolerance : ± 0.50
 Check
 tolerance °NW : ± 0.75

BASIC SETTING

Rated speed rpm : 1280
 Rack travel in mm : 10.55
 Tolerance mm : ± 0.05
 Del. quantity
 cm³/1000 strokes : 89.0
 cm³/1000 strokes : ± 1.0
 Check tolerance
 cm³/1000s. : ± 3.0
 Speed
 cm³/1000 strokes : 3.5

Check tolerance
cm³/1000S. : 6.0

Rated speed rpm : 350

Rack travel in mm : 5.80

Tolerance mm : ± 0.25

Del. quantity

cm³/1000 strokes : 12.0

cm³/1000 strokes : ± 2.0

Check tolerance

cm³/1000S. : ± 4.5

Spreed

cm³/1000 strokes : 3.5

Check tolerance

cm³/1000S. : 5.5

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE POSITION

Rated speed rpm : 800

Rack travel in mm : 0.65

Tolerance mm : ± 0.35

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1280

Aneroid pressure

hPa : 800

Del. quantity

cm³/1000 strokes : 89.0

cm³/1000 strokes : ± 1.0

Check tolerance

cm³/1000S. : ± 3.0

Spreed

cm³/1000 strokes : 3.5

Check tolerance

cm³/1000S. : 6.0

CONTROL LEVER

control lever

position degree : 114.0

tolerance degree : ± 4.0

RATED SPEED

rack travel mm : 1.00

Tolerance mm : ± 0.70

Rated speed rpm : 1550

G28

rack travel mm : 4.00

Rated speed rpm : 1420

ASSEMBLY GOVERNOR SETTING

Rated speed rpm : 1330

rack travel mm : 9.50

Rated speed rpm : 1414

Tolerance 1/min : ± 4

rack travel mm : 4.00

Rated speed rpm : 1331

rack travel mm : 9.50

Rated speed rpm : 1415

Tolerance 1/min : ± 4

rack travel mm : 4.00

Rated speed rpm : 1332

rack travel mm : 9.50

Rated speed rpm : 1416

Tolerance 1/min : ± 4

rack travel mm : 4.00

Rated speed rpm : 1333

rack travel mm : 9.50

Rated speed rpm : 1417

Tolerance 1/min : ± 4

rack travel mm : 4.00

Rated speed rpm : 1338

rack travel mm : 9.50

Rated speed rpm : 1422

Tolerance 1/min : ± 4

rack travel mm : 4.00

Rated speed rpm : 1339

rack travel mm : 9.50

Rated speed rpm : 1423

Tolerance 1/min : ± 4

rack travel mm : 4.00

LOW IDLE

control lever

position degree : 79.0

tolerance degree : ± 4.0

Testing:

Rated speed rpm : 350

rack travel mm : 5.80

Tolerance mm : + 0.25
rack travel mm : 2.00
Rated speed rpm : 450
Tolerance 1/min : + 30

Rated speed rpm : 100

CRT mm min. : > 19.00

TORQUE CONTROL

Rated speed rpm : 1280
rack travel mm : 10.55
Tolerance mm : + 0.05

Rated speed rpm : 800
rack travel mm : 11.25
Tolerance mm : + 0.10

Rated speed rpm : 1100
rack travel mm : 10.90
Tolerance mm : + 0.10

ANEROID/ALTITUDE
COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 800
rack travel mm : 10.25
Tolerance mm : + 0.10

MEASUREMENT

Pressure hPa : -
Rated speed rpm : 500
rack travel mm : 9.30
Tolerance mm : + 0.10

Rated speed rpm : 500

Pressure hPa : 470
rack travel mm : 10.60
Tolerance mm : + 0.10

Pressure hPa : 300
rack travel mm : 9.80
Tolerance mm : + 0.10

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 800
Rated speed rpm : 800
Del. quantity
cm³/1000 strokes : 88.0
cm³/1000 strokes : + 1.5
Check tolerance
cm³/1000S. : + 4.0
Spreed
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. : 7.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 50.0
cm³/1000 strokes : + 1.0
Check tolerance
cm³/1000S. : + 3.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 83.0
cm³/1000 strokes : + 5.0
Check tolerance
cm³/1000S. : + 8.0

LOW IDLE

Rated speed rpm : 350
Del. quantity
cm³/1000 strokes : 12.0
cm³/1000 strokes : + 2.0
Check tolerance
cm³/1000S. : + 4.5
Spreed
cm³/1000 strokes : 3.5
Check tolerance
cm³/1000S. : 5.5

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 18.11.96
 Test oil : ISO 4113
 Combination No. : 0 403 476 147
 Injection pump
 Pump designation : PES6MW100/72ORS1131
 : -1
 EP type number : 0 413 406 165
 Governor
 Governer design. : RSV750...1200MWOA329
 : -17
 Governer no. : 0 420 085 291
 Cust. part No. : 0270747902

Customer-spec. information
 Customer : MB-NFZ
 Motor : OM366LA
 Power KW : 163.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1
 Test oil inlet
 temp. °C : 40
 Tolerance °C : ± 2.0
 Overflow valve : 1 419 992 198
 Inlet press. bar : 1.5
 Test nozzle holde
 assembly : 1 688 901 101
 Opening pressure
 bar : 208.5
 Tolerance bar : ± 1.5
 Test lines : 1 680 750 089

H02

Outside diameter : 8.0
 x inside diameter : 3.0
 x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure bar : 31.0
 Tolerance bar : ± 1.0
 Prestroke mm : 3.65
 Tolerance mm : ± 0.05
 Check
 tolerance mm : ± 0.10
 Rack travel in mm : 10.50
 Tolerance mm : ± 1.50
 Firing order : 1- 5- 3- 6- 2-
 : 4
 Phasing : 0-60-120-180-240
 : -300
 Tolerance : ± 0.50
 Check
 tolerance °NW : ± 0.75

BASIC SETTING

Rated speed rpm : 1180
 Rack travel in mm : 13.15
 Tolerance mm : ± 0.05
 Del. quantity
 cm³/1000 strokes : 104.0
 cm³/1000 strokes : ± 1.0
 Check tolerance
 cm³/1000S. : ± 3.0
 Speed
 cm³/1000 strokes : 3.5

Check tolerance
cm³/1000S. : 6.0

Rated speed rpm : 750

Rack travel in mm : 4.70

Tolerance mm : ± 0.25

Del. quantity
cm³/1000 strokes : 12.0

cm³/1000 strokes : ± 2.0

Check tolerance
cm³/1000S. : ± 4.5

Spreed
cm³/1000 strokes : 3.5

Check tolerance
cm³/1000S. : 5.5

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE POSITION

Rated speed rpm : 800

Rack travel in mm : 0.65

Tolerance mm : ± 0.35

governor spring
pre-tension
click setting x : 4.75

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1180

Aneroid pressure
hPa : 1000

Del. quantity
cm³/1000 strokes : 104.0

cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : ± 3.0

Spreed
cm³/1000 strokes : 3.5

Check tolerance
cm³/1000S. : 6.0

CONTROL LEVER

control lever
position degree : 103.0

tolerance degree : ± 4.0

RATED SPEED

rack travel mm : 1.00

Tolerance mm : ± 0.70

Rated speed rpm : 1400

ASSEMBLY GOVERNOR SETTING

Rated speed rpm : 1230

rack travel mm : 12.10

Rated speed rpm : 1314

Tolerance 1/min : ± 4

rack travel mm : 4.00

Rated speed rpm : 1231

rack travel mm : 12.10

Rated speed rpm : 1315

Tolerance 1/min : ± 4

rack travel mm : 4.00

Rated speed rpm : 1232

rack travel mm : 12.10

Rated speed rpm : 1316

Tolerance 1/min : ± 4

rack travel mm : 4.00

Rated speed rpm : 1233

rack travel mm : 12.10

Rated speed rpm : 1317

Tolerance 1/min : ± 4

rack travel mm : 4.00

Rated speed rpm : 1238

rack travel mm : 12.10

Rated speed rpm : 1322

Tolerance 1/min : ± 4

rack travel mm : 4.00

Rated speed rpm : 1239

rack travel mm : 12.10

Rated speed rpm : 1323

Tolerance 1/min : ± 4

rack travel mm : 4.00

LOW IDLE

control lever
position degree : 86.0

tolerance degree : ± 4.0

Testing:

Rated speed rpm : 750
rack travel mm : 4.70
Tolerance mm : + 0.25

rack travel mm : 2.00
Rated speed rpm : 785
Tolerance 1/min : + 25

Rated speed rpm : 100

CRT mm min. : > 19.00

TORQUE CONTROL

Rated speed rpm : 1180
rack travel mm : 13.15
Tolerance mm : + 0.05

Rated speed rpm : 600
rack travel mm : 13.15
Tolerance mm : + 0.10

ANEROID/ALTITUDE
COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 1000
rack travel mm : 13.15
Tolerance mm : + 0.05

MEASUREMENT

Pressure hPa : -
Rated speed rpm : 500
Tolerance mm : + 0.10

Rated speed rpm : 500

Pressure hPa : 500
rack travel mm : 2.25
Tolerance mm : + 0.15

Pressure hPa : 350
rack travel mm : 1.10
Tolerance mm : + 0.05

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1000
Rated speed rpm : 600

H04

Del. quantity
cm³/1000 strokes : 97.0
cm³/1000 strokes : + 1.5
Check tolerance
cm³/1000s. : + 4.0
Spreed
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000s. : 7.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 43.0
cm³/1000 strokes : + 1.0
Check tolerance
cm³/1000s. : + 3.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 105.0
cm³/1000 strokes : + 5.0
Check tolerance
cm³/1000s. : + 8.0

LOW IDLE

Rated speed rpm : 750
Del. quantity
cm³/1000 strokes : 12.0
cm³/1000 strokes : + 2.0
Check tolerance
cm³/1000s. : + 4.5
Spreed
cm³/1000 strokes : 3.5
Check tolerance
cm³/1000s. : 5.5

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 22.11.96
Test oil : ISO 4113
Combination No. : 9 400 087 473
Injection pump
Pump designation : PE6P120A320RS3178-1
EP type number : 0 411 826 764
Governor
Governor design. : RQV250...950PA921
: -13
Governor no. : 0 421 813 796
Cust. part No. : 471 826 04

Customer-spec. information
Customer : VOLVO-TRUCK
Motor : TD 122 FK,FR
Power KW : 287.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1
Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0
Overflow valve : 2 417 413 046
Inlet press. bar : 1.5
Test nozzle holder
assembly : 1 688 901 019
Opening pressure
bar : 208.5
Tolerance bar : ± 1.5
Test lines : 1 680 750 075
Outside diameter : 8.0

H05

x inside diameter : 3.0
x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0
Prestroke mm : 3.65
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10
Rack travel in mm : 10.50
Tolerance mm : ± 1.50
Firing order : 1- 5- 3- 6- 2-
: 4
Phasing : 0-60-120-180-240
: -300

BASIC SETTING

Rated speed rpm : 700
Rack travel in mm : 14.25
Tolerance mm : ± 0.05
Del. quantity
cm3/1000 strokes : 260.0
cm3/1000 strokes : ± 1.0
Check tolerance
cm3/1000S. : ± 4.0
Speed
cm3/1000 strokes : 5.0
Check tolerance
cm3/1000S. : 9.0

Rated speed rpm : 250

Rack travel in mm : 4.95
Tolerance mm : ± 0.15
Del. quantity
cm³/1000 strokes : 20.0
cm³/1000 strokes : ± 2.5
Check tolerance
cm³/1000S. : ± 5.5
Speed
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. : 7.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 250
guide sleeve
travel mm : 1.20
Tolerance mm : ± 0.20

Rated speed rpm : 985
guide sleeve
travel mm : 8.20
Tolerance mm : ± 0.10

Rated speed rpm : 450
guide sleeve
travel mm : 3.90
Tolerance mm : ± 0.30

Rated speed rpm : 700
guide sleeve
travel mm : 6.50
Tolerance mm : ± 0.10

Rated speed rpm : 1060
guide sleeve
travel mm : 9.60
Tolerance mm : ± 0.20

GUIDE SLEEVE POSITION

Rated speed rpm : 1000
Rack travel in mm : 16.50
Tolerance mm : ± 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 700

Aneroid pressure
hPa : 1200
Del. quantity
cm³/1000 strokes : 260.0
cm³/1000 strokes : ± 1.0
Check tolerance
cm³/1000S. : ± 4.0
Speed
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. : 9.0

CONTROL LEVER

control lever
position degree : 65.0
tolerance degree : ± 4.0

control lever
position degree : 121.0
tolerance degree : ± 4.0

RATED SPEED

rack travel mm : 13.20
Rated speed rpm : 995
Tolerance 1/min : ± 5

rack travel mm : 4.00
Rated speed rpm : 1085
Tolerance 1/min : ± 15

rack travel mm : 0.50
Tolerance mm : ± 0.50
Rated speed rpm : 1200

LOW IDLE

control lever
position degree : 65.0
tolerance degree : ± 4.0

control lever
position degree : 10.0
tolerance degree : ± 4.0

Testing:

Rated speed rpm : 250
rack travel mm : 4.95
Tolerance mm : ± 0.15

Rated speed rpm : 100

CRT mm min. : > 6.50

Rated speed rpm : 315

TORQUE CONTROL

Rated speed rpm : 700
rack travel mm : 14.25
Tolerance mm : \pm 0.05

ANEROID/ALTITUDE
COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 1200
rack travel mm : 14.25
Tolerance mm : \pm 0.05

MEASUREMENT

Pressure hPa : -
Rated speed rpm : 500
Rated speed rpm : 500
Pressure hPa : 865
rack travel mm : 3.80
Tolerance mm : \pm 0.10
Pressure hPa : 100
rack travel mm : 0.25
Tolerance mm : \pm 0.05

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : -
Rated speed rpm : 700
Del. quantity
cm³/1000 strokes : 164.0
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 4.0

BREAKAWAY

Rack travel in mm : 13.20
Rated speed rpm : 995
Tolerance 1/min : \pm 5

H07

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.50
Tolerance mm : \pm 0.50
Del. quantity
cm³/1000 strokes : 290.0
cm³/1000 strokes : \pm 20.0
Check tolerance
cm³/1000S. : \pm 24.0

LOW IDLE

Rated speed rpm : 250
Del. quantity
cm³/1000 strokes : 20.0
cm³/1000 strokes : \pm 2.5
Check tolerance
cm³/1000S. : \pm 5.5
Speed
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. : 7.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 25.11.96
Test oil : ISO 4113
Combination No. : 0 400 874 256
Injection pump
Pump designation : PES4A95D410RS2877
EP type number : 0 410 894 988
Governor
Governor design. : RSV350...1400A0C819L
Governor no. : 0 420 232 617

Cust. part No. :

Customer-spec. information
Customer : MB-NFZ
Motor : OM364
Power KW : 65.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2
Test oil inlet temp. °C : 40
Tolerance °C : ± 2.0
Overflow valve : 1 419 992 198
Inlet press. bar : 1.5
Test nozzle holder assembly : 0 681 343 009
Opening pressure bar : 173.5
Tolerance bar : ± 1.5
Test lines : 1 680 750 015
Outside diameter : 6.0

x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 3.25
Tolerance mm : ± 0.05
Check tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270
Tolerance : ± 0.50
Check tolerance °NW : ± 0.75

BASIC SETTING

Rated speed rpm : 1400

Rack travel in mm : 10.55
Tolerance mm : ± 0.05

Del. quantity cm3/1000 strokes : 72.0

cm3/1000 strokes : ± 1.0

Check tolerance cm3/1000S. : ± 3.0

Speed cm3/1000 strokes : 3.5

Check tolerance
 cm³/1000S. : 8.0
 Rated speed rpm : 350
 Rack travel in mm : 6.70
 Tolerance mm : + 0.20
 Del. quantity
 cm³/1000 strokes : 12.0
 cm³/1000 strokes : + 2.0
 Check tolerance
 cm³/1000S. : + 4.5
 Spreed
 cm³/1000 strokes : 5.5
 Check tolerance
 cm³/1000S. : 9.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE POSITION

Rated speed rpm : 800
 Rack travel in mm : 0.50
 Tolerance mm : + 0.20
 governor spring
 pre-tension
 click setting x : 4.00

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1380
 Aneroid pressure
 hPa : -
 Del. quantity
 cm³/1000 strokes : 72.0
 cm³/1000 strokes : + 1.0
 Check tolerance
 cm³/1000S. : + 3.0
 Spreed
 cm³/1000 strokes : 3.5
 Check tolerance
 cm³/1000S. : 8.0

CONTROL LEVER

control lever
 position degree : 111.0
 tolerance degree : + 4.0

ASSEMBLY GOVERNOR SETTING

Rated speed rpm : 1433
 rack travel mm : 9.55
 Rated speed rpm : 1488
 Tolerance 1/min : + 6
 rack travel mm : 4.00
 rack travel mm : 1.00
 Tolerance mm : + 0.70
 Rated speed rpm : 1620
 Rated speed rpm : 1434
 rack travel mm : 9.55
 Rated speed rpm : 1489
 Tolerance 1/min : + 6
 rack travel mm : 4.00
 rack travel mm : 1.00
 Tolerance mm : + 0.70
 Rated speed rpm : 1620
 Rated speed rpm : 1435
 rack travel mm : 9.55
 Rated speed rpm : 1490
 Tolerance 1/min : + 6
 rack travel mm : 4.00
 rack travel mm : 1.00
 Tolerance mm : + 0.70
 Rated speed rpm : 1620
 Rated speed rpm : 1436
 rack travel mm : 9.55
 Rated speed rpm : 1491
 Tolerance 1/min : + 6
 rack travel mm : 4.00
 rack travel mm : 1.00
 Tolerance mm : + 0.70
 Rated speed rpm : 1620
 Rated speed rpm : 1437
 rack travel mm : 9.55
 Rated speed rpm : 1492
 Tolerance 1/min : + 6
 rack travel mm : 4.00
 rack travel mm : 1.00
 Tolerance mm : + 0.70
 Rated speed rpm : 1620
 Rated speed rpm : 1438
 rack travel mm : 9.55

Rated speed rpm : 1493
Tolerance 1/min : +- 6
rack travel mm : 4.00

rack travel mm : 1.00
Tolerance mm : +- 0.70
Rated speed rpm : 1620

LOW IDLE

control lever
position degree : 80.0
tolerance degree : +- 4.0

Testing:

Rated speed rpm : 350
rack travel mm : 6.70
Tolerance mm : +- 0.20

rack travel mm : 2.00
Rated speed rpm : 455
Tolerance 1/min : +- 30

Rated speed rpm : 100

CRT mm min. : > 19.50

SET IDLE AUXILIARY SPRING

Rated speed rpm : 455
rack travel mm : 2.00

TORQUE CONTROL

Rated speed rpm : 1400
rack travel mm : 10.55
Tolerance mm : +- 0.05

Rated speed rpm : 500
rack travel mm : 10.60
Tolerance mm : +- 0.10

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : -
Rated speed rpm : 400
Del. quantity
cm³/1000 strokes : 51.0
cm³/1000 strokes : +- 2.0

Check tolerance
cm³/1000S. : +- 4.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 16.20
Tolerance mm : +- 0.20
Del. quantity
cm³/1000 strokes : 83.0
cm³/1000 strokes : +- 5.0
Check tolerance
cm³/1000S. : +- 8.0

LOW IDLE

Rated speed rpm : 350
Del. quantity
cm³/1000 strokes : 12.0
cm³/1000 strokes : +- 2.0
Check tolerance
cm³/1000S. : +- 4.5
Spread
cm³/1000 strokes : 5.5
Check tolerance
cm³/1000S. : 9.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 25.11.96
Test oil : ISO 4113

Combination No. : 0 400 876 430

Injection pump
Pump designation : PES6A95D410RS2864
EP type number : 0 410 896 888

Governor
Governor design. : RSV400...1050AOC2263
: -10L
Governor no. : 0 420 232 619

Cust. part No. : 87 800 862

Customer-spec. information
Customer : FNH-GEOTECH
Motor : P 396
Power KW : 142.0

TEST BENCH REQUIREMENTS

Inlet line : 1.3

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 419 992 198

Inlet press. bar : 1.5

Test nozzle holder
assembly : 1 688 901 101

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 2.60
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300

BASIC SETTING

Rated speed rpm : 750

Rack travel in mm : 15.20
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 154.0

cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000s. : ± 3.0

Speed
cm³/1000 strokes : 3.5

Check tolerance
 cm³/1000S. : 8.0
 Rated speed rpm : 450
 Rack travel in mm : 5.60
 Tolerance mm : +- 0.10
 Del. quantity
 cm³/1000 strokes : 15.0
 cm³/1000 strokes : +- 2.0
 Check tolerance
 cm³/1000S. : +- 4.5
 Spreed
 cm³/1000 strokes : 5.5
 Check tolerance
 cm³/1000S. : 9.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE POSITION

Rated speed rpm : 800
 Rack travel in mm : 0.50
 Tolerance mm : +- 0.20
 governor spring
 pre-tension
 click setting x : 4.00

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 750
 Aneroid pressure
 hPa : 1200
 Del. quantity
 cm³/1000 strokes : 154.0
 cm³/1000 strokes : +- 1.0
 Check tolerance
 cm³/1000S. : +- 3.0
 Spreed
 cm³/1000 strokes : 3.5
 Check tolerance
 cm³/1000S. : 8.0

CONTROL LEVER

control lever
 position degree : 97.0
 tolerance degree : +- 4.0

ASSEMBLY GOVERNOR SETTING

Rated speed rpm : 1093
 rack travel mm : 12.40
 Rated speed rpm : 1158
 Tolerance 1/min : +- 5
 rack travel mm : 4.00
 rack travel mm : 0.85
 Tolerance mm : +- 0.55
 Rated speed rpm : 1270
 Rated speed rpm : 1094
 rack travel mm : 12.40
 Rated speed rpm : 1159
 Tolerance 1/min : +- 5
 rack travel mm : 4.00
 rack travel mm : 0.85
 Tolerance mm : +- 0.55
 Rated speed rpm : 1270
 Rated speed rpm : 1095
 rack travel mm : 12.40
 Rated speed rpm : 1160
 Tolerance 1/min : +- 5
 rack travel mm : 4.00
 rack travel mm : 0.85
 Tolerance mm : +- 0.55
 Rated speed rpm : 1270
 Rated speed rpm : 1096
 rack travel mm : 12.40
 Rated speed rpm : 1161
 Tolerance 1/min : +- 5
 rack travel mm : 4.00
 rack travel mm : 0.85
 Tolerance mm : +- 0.55
 Rated speed rpm : 1270
 Rated speed rpm : 1097
 rack travel mm : 12.40
 Rated speed rpm : 1162
 Tolerance 1/min : +- 5
 rack travel mm : 4.00
 rack travel mm : 0.85
 Tolerance mm : +- 0.55
 Rated speed rpm : 1270
 Rated speed rpm : 1098
 rack travel mm : 12.40

Rated speed rpm : 1163
Tolerance 1/min : + 5
rack travel mm : 4.00

rack travel mm : 0.85
Tolerance mm : + 0.55
Rated speed rpm : 1270

LOW IDLE

control lever
position degree : 75.0
tolerance degree : + 4.0

Setting point w/out bumper spring

Rated speed rpm : 450
rack travel mm : 5.10

Testing:

Rated speed rpm : 450
rack travel mm : 5.60
Tolerance mm : + 0.10

rack travel mm : 2.00
Rated speed rpm : 575
Tolerance 1/min : + 30

TORQUE CONTROL

Rated speed rpm : 750
rack travel mm : 15.20
Tolerance mm : + 0.05

Rated speed rpm : 500
rack travel mm : 15.25
Tolerance mm : + 0.10

Rated speed rpm : 1050
rack travel mm : 12.90
Tolerance mm : + 0.05

Rated speed rpm : 1050
rack travel mm : 13.40
Tolerance mm : + 0.10

Rated speed rpm : 950
rack travel mm : 14.25
Tolerance mm : + 0.10

ANEROID/ALTITUDE
COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 1200
rack travel mm : 15.25
Tolerance mm : + 0.10

MEASUREMENT

Pressure hPa : -
Rated speed rpm : 500
rack travel mm : 9.20
Tolerance mm : + 0.05

Rated speed rpm : 500

Pressure hPa : 750
rack travel mm : 13.70
Tolerance mm : + 0.05

Pressure hPa : 500
rack travel mm : 11.80
Tolerance mm : + 0.20

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 76.5
cm³/1000 strokes : + 1.0
Check tolerance
cm³/1000S. : + 3.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.00
Tolerance mm : + 0.20
Del. quantity
cm³/1000 strokes : 163.0
cm³/1000 strokes : + 8.0
Check tolerance
cm³/1000S. : + 11.0

LOW IDLE

Rated speed rpm : 450
Del. quantity
cm³/1000 strokes : 15.0

cm³/1000 strokes : ± 2.0
Check tolerance
cm³/1000s. : ± 4.5
Speed
cm³/1000 strokes : 5.5
Check tolerance
cm³/1000s. : 9.0

End of test specification sheet



BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 21.11.96
Test oil : ISO 4113
Combination No. : 0 402 036 762
Injection pump
Pump designation : PES6P110A120RS3353
EP type number : 0 412 016 752
Governor
Governor design. : RQV450...1100PA1233
 : -1K
Governor no. : 0 421 815 479
Cust. part No. : 3926776

Customer-spec. information
Customer : CDC
Motor : 6CTA
Power KW : 194.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2
Test oil inlet
temp. °C : 40
Tolerance °C : +- 2.0
Overflow valve : 2 417 413 093
Inlet press. bar : 2.0
Tolerance bar : +- 0.1
Test nozzle holde
assembly : 1 688 901 103
Opening pressure
bar : 208.5
Tolerance bar : +- 1.5
Test lines : 1 680 750 015

H15

Outside diameter : 6.0
x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 17.0
Tolerance bar : +- 1.0
Firing order : 1- 5- 3- 6- 2-
 : 4
Phasing : 0-60-120-180-240
 : -300
Tolerance : +- 0.50
Check
tolerance °NW : +- 0.75

Start of delivery blocking

°NW after s.o.d. : 8.00
Tolerance : +- 0.50
Check
tolerance °NW : +- 0.75
Barrel no. : 1

Beginning of delivery differende

and maximum rack
travel : 13.00
Difference °CS : 1.20

BASIC SETTING

Rated speed rpm : 1000
Rack travel in mm : 13.15
Tolerance mm : +- 0.05
Del. quantity
cm³/1000 strokes : 206.5

cm ³ /1000 strokes	: ± 1.0
Check tolerance cm ³ /1000S.	: ± 4.0
Speed cm ³ /1000 strokes	: 8.0
Check tolerance cm ³ /1000S.	: 12.0
Rated speed rpm	: 500
Rack travel in mm	: 5.90
Tolerance mm	: ± 0.20
Del. quantity cm ³ /1000 strokes	: 21.5
cm ³ /1000 strokes	: ± 3.0
Check tolerance cm ³ /1000S.	: ± 5.0
Speed cm ³ /1000 strokes	: 4.0
Check tolerance cm ³ /1000S.	: 8.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm	: 500
guide sleeve travel mm	: 1.82
Tolerance mm	: ± 0.25
Rated speed rpm	: 1214
guide sleeve travel mm	: 8.09
Tolerance mm	: ± 0.15
Rated speed rpm	: 890
guide sleeve travel mm	: 4.75
Tolerance mm	: ± 0.25
Rated speed rpm	: 1570
guide sleeve travel mm	: 13.50
Tolerance mm	: ± 0.50

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm	: 1000
Aneroid pressure hPa	: 1200

H16

Del. quantity cm ³ /1000 strokes	: 206.5
cm ³ /1000 strokes	: ± 1.0
Check tolerance cm ³ /1000S.	: ± 4.0
Speed cm ³ /1000 strokes	: 8.0
Check tolerance cm ³ /1000S.	: 12.0

CONTROL LEVER

control lever position degree	: 117.0
tolerance degree	: ± 6.0

RATED SPEED

rack travel mm	: 11.45
Rated speed rpm	: 1160
Tolerance 1/min	: ± 15

rack travel mm	: 6.45
Rated speed rpm	: 1230
Tolerance 1/min	: ± 5

rack travel mm	: 0.50
Tolerance mm	: ± 0.50
Rated speed rpm	: 1300

LOW IDLE

control lever position degree	: 79.0
tolerance degree	: ± 6.0

Testing:

Rated speed rpm	: 500
rack travel mm	: 5.90
Tolerance mm	: ± 0.20

Rated speed rpm	: 400
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CRT mm min.	: > 7.50
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Rated speed rpm	: 500
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TORQUE CONTROL

Rated speed rpm	: 1000
rack travel mm	: 13.15
Tolerance mm	: ± 0.05

Rated speed rpm : 750
rack travel mm : 12.55
Tolerance mm : ± 0.20

Rated speed rpm : 1100
rack travel mm : 12.60
Tolerance mm : ± 0.10

ANEROID/ALTITUDE
COMPENSATOR TEST

SETTING

Rated speed rpm : 1000
Pressure hPa : 1200

MEASUREMENT

Pressure hPa : -
Rated speed rpm : 1000
rack travel mm : 10.15
Tolerance mm : ± 0.20

Rated speed rpm : 1000

Pressure hPa : 720
rack travel mm : 12.20
Tolerance mm : ± 0.30

Pressure hPa : 580
rack travel mm : 11.20
Tolerance mm : ± 0.20

START CUT-OUT

Rated speed rpm : > 100
Rated speed rpm : < 380

Check speed 1/min : > 80
Check speed 1/min : < 390

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure hPa : 1200
Rated speed rpm : 750
Del. quantity cm³/1000 strokes : 197.5
cm³/1000 strokes : ± 3.0
Check tolerance cm³/1000S. : ± 6.0
Spreed cm³/1000 strokes : 8.0

Check tolerance cm³/1000S. : 12.0

Aneroid pressure hPa : 1200
Rated speed rpm : 1100
Del. quantity cm³/1000 strokes : 190.5
cm³/1000 strokes : ± 2.0
Check tolerance cm³/1000S. : ± 5.0

Aneroid pressure hPa : -
Rated speed rpm : 1000
Del. quantity cm³/1000 strokes : 124.0
cm³/1000 strokes : ± 1.0
Check tolerance cm³/1000S. : ± 4.0

BREAKAWAY

Rack travel in mm : 11.45
Rated speed rpm : 1160
Tolerance 1/min : ± 15

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 21.00
Tolerance mm : ± 0.50
Del. quantity cm³/1000 strokes : 161.0
cm³/1000 strokes : ± 20.0
Check tolerance cm³/1000S. : ± 25.0

LOW IDLE

Rated speed rpm : 500
Del. quantity cm³/1000 strokes : 21.5
cm³/1000 strokes : ± 3.0
Check tolerance cm³/1000S. : ± 5.0
Spreed cm³/1000 strokes : 4.0
Check tolerance cm³/1000S. : 8.0

End of test specification sheet



BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 21.11.96
Test oil : ISO 4113

Combination No. : 0 402 746 621

Injection pump
Pump designation : PES6P120A72ORS7424
EP type number : 0 412 726 964

Governor
Governor design. : RQV325...875PA944
 : -24K
Governor no. : 0 421 815 535

Cust. part No. : 313GC5223-P14

Customer-spec. information

Customer : MACK
Motor : EM7-300
Power KW : 224.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 413 359 008

Inlet press. bar : 2.8
Tolerance bar : ± 0.1

Test nozzle holde
assembly : 1 688 901 103

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 17.0
Tolerance bar : ± 1.0

Prestroke mm : 3.30
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 12.00
Tolerance mm : ± 1.00

Firing order : 1- 5- 3- 6- 2-
 : 4

Phasing : 0-60-120-180-240
 : -300
Tolerance : ± 0.30
Check
tolerance °NW : ± 0.75

Start of delivery blocking

Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 875

Rack travel in mm : 14.10
Tolerance mm : ± 0.05

Del. quantity	
cm ³ /1000 strokes	: 312.0
<hr/>	
cm ³ /1000 strokes	: ± 1.0
<hr/>	
Check tolerance	
cm ³ /1000S.	: ± 4.0
<hr/>	
Speed	
cm ³ /1000 strokes	: 5.0
<hr/>	
Check tolerance	
cm ³ /1000S.	: 9.0
<hr/>	
Rated speed rpm	: 340
<hr/>	
Rack travel in mm	: 5.10
Tolerance mm	: ± 0.10
Del. quantity	
cm ³ /1000 strokes	: 40.0
cm ³ /1000 strokes	: ± 3.0
Check tolerance	
cm ³ /1000S.	: ± 5.0
Speed	
cm ³ /1000 strokes	: 8.0
Check tolerance	
cm ³ /1000S.	: 12.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm	: 340
guide sleeve	
travel mm	: 1.92
Tolerance mm	: ± 0.20
<hr/>	
Rated speed rpm	: 939
guide sleeve	
travel mm	: 7.51
Tolerance mm	: ± 0.15
<hr/>	
Rated speed rpm	: 726
guide sleeve	
travel mm	: 5.63
Tolerance mm	: ± 0.25
<hr/>	
Rated speed rpm	: 510
guide sleeve	
travel mm	: 3.81
Tolerance mm	: ± 0.25
<hr/>	
Rated speed rpm	: 1370
guide sleeve	
travel mm	: 13.50
Tolerance mm	: ± 0.50

H20

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm	: 875
Aneroid pressure	
hPa	: 1200
Del. quantity	
cm ³ /1000 strokes	: 312.0
cm ³ /1000 strokes	: ± 1.0
Check tolerance	
cm ³ /1000S.	: ± 4.0
Speed	
cm ³ /1000 strokes	: 5.0
Check tolerance	
cm ³ /1000S.	: 9.0

CONTROL LEVER

control lever	
position degree	: 103.0
tolerance degree	: ± 4.0

RATED SPEED

rack travel mm	: 13.00
Rated speed rpm	: 930
Tolerance 1/min	: ± 5

rack travel mm	: 4.00
Rated speed rpm	: 1115
Tolerance 1/min	: ± 15

rack travel mm	: 0.50
Tolerance mm	: ± 0.50
Rated speed rpm	: 1210

LOW IDLE

control lever	
position degree	: 65.0
tolerance degree	: ± 4.0

Testing:

Rated speed rpm	: 340
rack travel mm	: 5.10
Tolerance mm	: ± 0.10

Rated speed rpm	: 275
-----------------	-------

CRT mm min.	: > 6.06
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Rated speed rpm	: 425
-----------------	-------

TORQUE CONTROL

Rated speed rpm : 875
rack travel mm : 14.10
Tolerance mm : ± 0.05

Rated speed rpm : 510
rack travel mm : 14.85
Tolerance mm : ± 0.10

Rated speed rpm : 625
rack travel mm : 14.70
Tolerance mm : ± 0.20

Rated speed rpm : 400
rack travel mm : 14.25
Tolerance mm : ± 0.20

**ANEROID/ALTITUDE
COMPENSATOR TEST****SETTING**

Rated speed rpm : 510
Pressure hPa : 1200

MEASUREMENT

Pressure hPa : -
Rated speed rpm : 510
rack travel mm : 9.20
Tolerance mm : ± 0.20

Rated speed rpm : 510

Pressure hPa : 740
rack travel mm : 13.20
Tolerance mm : ± 0.20

Pressure hPa : 400
rack travel mm : 10.60
Tolerance mm : ± 0.05

START CUT-OUT

Rated speed rpm : > 100
Rated speed rpm : < 250

Check speed 1/min : > 80
Check speed 1/min : < 255

FUEL DELIVERY CHARACTERISTICS

H21

Aneroid pressure
hPa : 1200
Rated speed rpm : 510

Del. quantity
cm³/1000 strokes : 402.0
cm³/1000 strokes : ± 3.0

Check tolerance
cm³/1000S. : ± 6.0

Speed
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

Aneroid pressure
hPa : -
Rated speed rpm : 400

Del. quantity
cm³/1000 strokes : 187.5
cm³/1000 strokes : ± 2.0

Check tolerance
cm³/1000S. : ± 4.0

BREAKAWAY

Rack travel in mm : 13.00
Rated speed rpm : 930
Tolerance 1/min : ± 5

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 21.00
Tolerance mm : ± 0.50

Del. quantity
cm³/1000 strokes : 190.0
cm³/1000 strokes : ± 20.0
Check tolerance
cm³/1000S. : ± 30.0

LOW IDLE

Rated speed rpm : 340
Del. quantity
cm³/1000 strokes : 40.0
cm³/1000 strokes : ± 3.0

Check tolerance
cm³/1000S. : ± 5.0

Speed
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

End of test specification sheet



BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 21.11.96
Test oil : ISO 4113

Combination No. : 0 401 496 003

Injection pump
Pump designation : PE6R120/72ORS1504
EP type number : 0 411 426 003

Governor
Governor design. : RE31
Governor no. : 0 421 890 200

Cust. part No. : 1556415
: -P10v20.11.96

Customer-spec. information
Customer : VOLVO-TRUCK
Motor : TD 164
Power KW : 382.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 078

Inlet press. bar : 2.5
Tolerance bar : ± 0.1

Test nozzle holder
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0
x inside diameter : 3.0
x length mm : 600

REMARKS

Pump-specific values
in Section (B)
must be observed!

(A) INJECTION PUMP SETTINGS
No basic setting.
Setting of constant delivery
under Section C.

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 5.45
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 0.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.30
Check
tolerance °NW : ± 0.75

Start of delivery mark

Barrel no. : 1

(B) POSITIONER TESTING

Warm-up time: 3 minutes at
n=600 min⁻¹, Uact = 2.5 V

TESTING & SETTING RACK TRAVEL SENSOR
POSITION

Engine speed min⁻¹: 0

Setting point
(P, R and H pump)

Uact V : 3.100
CRT mm : 13.00
Tolerance mm : +/- 0.05
Check
tolerance mm : +/- 0.10

Check value
(P, R and H pump)

Uact V : 1.700
CRT mm : 6.15
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.30

Setting point
(M pump)

Uact V : 3.100
CRT mm : 12.50
Tolerance mm : +/- 0.05
Check
tolerance mm : +/- 0.10

Check value
(M pump)

Uact V : 1.700
CRT mm : 5.50
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.30

Stop position

Uact V : Value with
deenergised adjusting magnet
and control rod in
stop position.
CRT mm : 0.75
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.35

ENGINE-SPEED SENSOR
(ALL P and R pumps not
H and M pumps)

Test with control rod
in stop position

Engine speed min⁻¹: 60
Amplitude V : 1.4
Tolerance V : +/- 0.6
Check
tolerance V : +/- 1.20

Engine speed min⁻¹: 600
Difference
Amplitude to
Amplitude V : max.1.4

(C) INJECTION PUMP WITH POSITIONER

TEST POINT V1

Rated speed rpm : 525
Uact V : 2.950
Del. quantity
cm³/1000 strokes : 390.0
cm³/1000 strokes : +/- 1.0
Check tolerance
cm³/1000S. : +/- 4.0
Spread
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 10.0

FUEL DELIVERY CHARACTERISTICS

Rated speed rpm : 900
Uact V : 3.240
Del. quantity
cm³/1000 strokes : 386.0
cm³/1000 strokes : +/- 3.0
Check tolerance
cm³/1000S. : +/- 6.0
Spread
cm³/1000 strokes : 9.0
Check tolerance
cm³/1000S. : 13.0

Rated speed rpm : 900
Uact V : 2.000
Del. quantity
cm³/1000 strokes : 163.0
cm³/1000 strokes : +/- 3.0
Check tolerance
cm³/1000S. : +/- 6.0

TEST POINT L1

Rated speed rpm : 265
Rated speed rpm : 265
Uact V : 1.630
Uact V : 1.630
Tolerance Volt : \pm 0.060
Check tolerance
Volt : \pm 0.060
Del. quantity
cm³/1000 strokes : 19.0
Del. quantity
cm³/1000 strokes : 20.0
cm³/1000 strokes : \pm 3.0
cm³/1000 strokes : \pm 3.0
Spreed
cm³/1000 strokes : 7.0
cm³/1000 strokes : 7.0
Check tolerance
cm³/1000S. : 11.0
Check tolerance
cm³/1000S. : 11.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 26.11.96
Test oil : ISO 4113

Combination No. : 0 402 046 875

Injection pump
Pump designation : PES6P110A320RS3329Z
EP type number : 0 412 016 744

Governor
Governor design. : RQV325...1250PA1251
Governor no. : 0 421 814 164

Cust. part No. : 1309376/0

Customer-spec. information

Customer : DAF
Motor : NS156M
Power KW : 156.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 000

Inlet press. bar : 1.5
Tolerance bar : ± 0.1

Overflow quantity
min. L/h : 160
Tolerance L/h : ± 20.0

Test nozzle holder
assembly : 1 688 901 101

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 5.25
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 20.50
Tolerance mm : ± 0.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.30
Check
tolerance °NW : ± 0.50

Start of delivery mark

Tolerance : ± 0.10
Check
tolerance °NW : ± 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1000

Rack travel in mm : 11.85
Tolerance mm : ± 0.05

<hr/>	
Del. quantity	
cm ³ /1000 strokes :	144.0
<hr/>	
cm ³ /1000 strokes :	+ 1.0
<hr/>	
Check tolerance	
cm ³ /1000S. :	+ 4.0
<hr/>	
Spreed	
cm ³ /1000 strokes :	4.0
<hr/>	
Check tolerance	
cm ³ /1000S. :	7.5
<hr/>	
Rated speed rpm :	325
<hr/>	
Rack travel in mm :	4.50
Tolerance mm :	+ 0.10
Del. quantity	
cm ³ /1000 strokes :	26.0
cm ³ /1000 strokes :	+ 2.5
Check tolerance	
cm ³ /1000S. :	+ 5.0
Spreed	
cm ³ /1000 strokes :	12.0
Check tolerance	
cm ³ /1000S. :	15.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm :	325
guide sleeve	
travel mm :	1.25
Tolerance mm :	+ 0.20
<hr/>	
Rated speed rpm :	1298
guide sleeve	
travel mm :	10.25
Tolerance mm :	+ 0.15
<hr/>	
Rated speed rpm :	863
guide sleeve	
travel mm :	5.41
Tolerance mm :	+ 0.25
<hr/>	
Rated speed rpm :	520
guide sleeve	
travel mm :	3.02
Tolerance mm :	+ 0.25
<hr/>	
Rated speed rpm :	1510
guide sleeve	
travel mm :	13.50

H27

Tolerance mm : + 0.50

GUIDE SLEEVE POSITION

Rated speed rpm :	1370
Rack travel in mm :	10.85
Tolerance mm :	+ 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm :	1000
Aneroid pressure	
hPa :	1500
Del. quantity	
cm ³ /1000 strokes :	144.0
cm ³ /1000 strokes :	+ 1.0
Check tolerance	
cm ³ /1000S. :	+ 4.0
Spreed	
cm ³ /1000 strokes :	4.0
Check tolerance	
cm ³ /1000S. :	7.5

CONTROL LEVER

control lever	
position degree :	123.0
tolerance degree :	+ 4.0

RATED SPEED

rack travel mm :	10.85
Rated speed rpm :	1300
Tolerance 1/min :	+ 5
<hr/>	
rack travel mm :	4.00
Rated speed rpm :	1375
Tolerance 1/min :	+ 15
<hr/>	
rack travel mm :	0.50
Tolerance mm :	+ 0.50
Rated speed rpm :	1500

LOW IDLE

control lever	
position degree :	76.0
tolerance degree :	+ 4.0

Testing:

Rated speed rpm :	325
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rack travel mm : 4.50
Tolerance mm : ± 0.10

Rated speed rpm : 225

CRT mm min. : > 6.00

Rated speed rpm : 375

TORQUE CONTROL

Rated speed rpm : 1000
rack travel mm : 11.85
Tolerance mm : ± 0.05

Rated speed rpm : 700
rack travel mm : 11.85
Tolerance mm : ± 0.10

Rated speed rpm : 1250
rack travel mm : 11.85
Tolerance mm : ± 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 600
Pressure hPa : 1500
rack travel mm : 11.85
Tolerance mm : ± 0.05

MEASUREMENT

Pressure hPa : -
Rated speed rpm : 600
rack travel mm : 7.35
Tolerance mm : ± 0.20

Rated speed rpm : 600

Pressure hPa : 370
rack travel mm : 10.75
Tolerance mm : ± 0.05

Pressure hPa : 200
rack travel mm : 8.40
Tolerance mm : ± 0.10

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1500

H28

Rated speed rpm : 700
Del. quantity
cm³/1000 strokes : 145.0
cm³/1000 strokes : ± 3.0
Check tolerance
cm³/1000S. : ± 6.0

Aneroid pressure
hPa : -
Rated speed rpm : 1000
Del. quantity
cm³/1000 strokes : 94.0
cm³/1000 strokes : ± 1.0
Check tolerance
cm³/1000S. : ± 3.5

BREAKAWAY

Rack travel in mm : 10.85
Rated speed rpm : 1300
Tolerance 1/min : ± 5

LOW IDLE

Rated speed rpm : 325
Del. quantity
cm³/1000 strokes : 26.0
cm³/1000 strokes : ± 2.5
Check tolerance
cm³/1000S. : ± 5.0
Spreed
cm³/1000 strokes : 12.0
Check tolerance
cm³/1000S. : 15.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 25.11.96
Test oil : ISO 4113
Combination No. : 0 402 076 748G
Injection pump
Pump designation : PES6P110A720RS3305
: -1
EP type number : 0 412 016 742
Governor
Governor design. : RSV300...1100P1A555
Governor no. : 0 421 833 379

Cust. part No. : 9271056

Customer-spec. information
Customer : LIEBHERR
Motor : D 926 TI
Power KW : 218.0

TEST BENCH REQUIREMENTS

Inlet line : 4.1
Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0
Overflow valve : 1 417 413 049
Inlet press. bar : 1.5
Tolerance bar : ± 0.1
Overflow quantity
min. l/h : 130
Tolerance l/h : ± 10.0
Test nozzle holde
assembly : 1 688 901 101
Opening pressure
bar : 207.5
Tolerance bar : ± 1.5

J01

Test Lines : 1 680 750 008
Outside diameter : 6.0
x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0
Prestroke mm : 3.20
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10
Rack travel in mm : 10.50
Tolerance mm : ± 1.50
Firing order : 1- 5- 3- 6- 2-
: 4
Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.30
Check
tolerance °NW : ± 0.50
Start of delivery mark
Barrel no. : 1

BASIC SETTING

Rated speed rpm : 900
Rack travel in mm : 12.30
Tolerance mm : ± 0.05

Del. quantity
 cm³/1000 strokes : 181.0

cm³/1000 strokes : ± 1.0

Check tolerance
 cm³/1000S. : ± 3.5

Spreed
 cm³/1000 strokes : 4.0

Check tolerance
 cm³/1000S. : 7.5

Rated speed rpm : 400

Rack travel in mm : 4.40
 Tolerance mm : ± 0.10

Del. quantity
 cm³/1000 strokes : 30.0
 cm³/1000 strokes : ± 3.0

Check tolerance
 cm³/1000S. : ± 5.5

Spreed
 cm³/1000 strokes : 4.5

Check tolerance
 cm³/1000S. : 7.5

(B) SETTING OF INJECTION PUMP
 WITH GOVERNOR

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 900
 Aneroid pressure
 hPa : 1150

Del. quantity
 cm³/1000 strokes : 181.0
 cm³/1000 strokes : ± 1.0

Check tolerance
 cm³/1000S. : ± 3.5

Spreed
 cm³/1000 strokes : 4.0

Check tolerance
 cm³/1000S. : 7.5

CONTROL LEVER

control lever
 position degree : 100.0
 tolerance degree : ± 4.0

RATED SPEED

rack travel mm : 10.85
 Rated speed rpm : 925
 Tolerance 1/min : ± 5

rack travel mm : 4.00
 Rated speed rpm : 980
 Tolerance 1/min : ± 15

rack travel mm : 0.85
 Tolerance mm : ± 0.55
 Rated speed rpm : 1260

rack travel mm : 4.00
 Rated speed rpm : 995

LOW IDLE

control lever
 position degree : 75.0
 tolerance degree : ± 4.0

Setting point w/out bumper spring

Rated speed rpm : 500
 rack travel mm : 3.90

Testing:

Rated speed rpm : 500
 rack travel mm : 4.40
 Tolerance mm : ± 0.10

TORQUE CONTROL

Rated speed rpm : 900
 rack travel mm : 12.30
 Tolerance mm : ± 0.05

Rated speed rpm : 500
 rack travel mm : 12.30
 Tolerance mm : ± 0.10

Rated speed rpm : 700
 rack travel mm : 12.30
 Tolerance mm : ± 0.10

Rated speed rpm : 450
 rack travel mm : 13.70
 Tolerance mm : ± 0.10

ANEROID/ALTITUDE
 COMPENSATOR TEST

SETTING

Rated speed rpm : 550
Pressure hPa : 1150
rack travel mm : 12.30
Tolerance mm : ± 0.05

MEASUREMENT

Pressure hPa : -
Rated speed rpm : 550
rack travel mm : 9.45
Tolerance mm : ± 0.10

Rated speed rpm : 550

Pressure hPa : 800
rack travel mm : 11.80
Tolerance mm : ± 0.05

Pressure hPa : 670
rack travel mm : 10.35
Tolerance mm : ± 0.10

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1150
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 203.0
cm³/1000 strokes : ± 2.0
Check tolerance
cm³/1000S. : ± 5.0

Aneroid pressure
hPa : 1150
Rated speed rpm : 700
Del. quantity
cm³/1000 strokes : 196.0
cm³/1000 strokes : ± 2.0
Check tolerance
cm³/1000S. : ± 5.0

Aneroid pressure
hPa : -
Rated speed rpm : 550
Del. quantity
cm³/1000 strokes : 143.0
cm³/1000 strokes : ± 1.0
Check tolerance
cm³/1000S. : ± 3.5

BREAKAWAY

Rack travel in mm : 10.85

J03

Rated speed rpm : 925
Tolerance 1/min : ± 5

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.50
Tolerance mm : ± 0.50
Del. quantity
cm³/1000 strokes : 145.0
cm³/1000 strokes : ± 10.0
Check tolerance
cm³/1000S. : ± 14.0

LOW IDLE

Rated speed rpm : 400
Del. quantity
cm³/1000 strokes : 30.0
cm³/1000 strokes : ± 3.0
Check tolerance
cm³/1000S. : ± 5.5
Speed
cm³/1000 strokes : 4.5
Check tolerance
cm³/1000S. : 7.5

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 22.11.96
Test oil : ISO 4113

Combination No. : 0 402 648 784

Injection pump
Pump designation : PE8P120A320LS7845
EP type number : 0 412 628 861

Governor
Governor design. : RQV350...1050PA1324
Governor no. : 0 421 814 187

Cust. part No. : 0280740202

Customer-spec. information

Customer : MB-NFZ
Motor : OM402 LA
Power KW : 280.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 1.5

Overflow quantity min. L/h : 100
Tolerance L/h : ± 10.0

Test nozzle holder assembly : 1 688 901 105

Opening pressure bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 075
Outside diameter : 8.0
x inside diameter : 3.0
x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 5.55
Tolerance mm : ± 0.05
Check tolerance mm : ± 0.10

Rack travel in mm : 20.50
Tolerance mm : ± 0.50

Firing order : 8- 7- 2- 6- 3
 : - 5- 4- 1

Phasing : 0-45-90-135-180
 : -225-270-315
Tolerance : ± 0.30
Check tolerance °NW : ± 0.50

Start of delivery mark
Tolerance : ± 0.10
Check tolerance °NW : ± 0.75

Barrel no. : 8

BASIC SETTING

Rated speed rpm : 1050

Rack travel in mm : 13.80
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 208.0

cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : ± 4.0

Speed
cm³/1000 strokes : 6.0

Check tolerance
cm³/1000S. : 9.0

Rated speed rpm : 350

Rack travel in mm : 4.40
Tolerance mm : ± 0.10

Del. quantity
cm³/1000 strokes : 13.0
cm³/1000 strokes : ± 3.0

Check tolerance
cm³/1000S. : ± 6.0

Speed
cm³/1000 strokes : 6.0

Check tolerance
cm³/1000S. : 10.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 350
guide sleeve
travel mm : 2.02
Tolerance mm : ± 0.20

Rated speed rpm : 1107
guide sleeve
travel mm : 8.18
Tolerance mm : ± 0.15

Rated speed rpm : 890
guide sleeve
travel mm : 5.70
Tolerance mm : ± 0.25

Rated speed rpm : 550
guide sleeve
travel mm : 3.56
Tolerance mm : ± 0.25

Rated speed rpm : 1197
guide sleeve
travel mm : 10.00
Tolerance mm : ± 0.25

Rated speed rpm : 1290
guide sleeve
travel mm : 11.50
Tolerance mm : ± 0.50

GUIDE SLEEVE POSITION

Rated speed rpm : 1154

Rack travel in mm : 12.90
Tolerance mm : ± 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1050
Aneroid pressure
hPa : 1200
Del. quantity
cm³/1000 strokes : 208.0
cm³/1000 strokes : ± 1.0
Check tolerance
cm³/1000S. : ± 4.0
Speed
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 9.0

CONTROL LEVER

control lever
position degree : 119.0
tolerance degree : ± 4.0

RATED SPEED

rack travel mm : 12.80
Rated speed rpm : 1095
Tolerance 1/min : ± 5

rack travel mm : 4.00
Rated speed rpm : 1185
Tolerance 1/min : ± 15

rack travel mm : 0.75
Tolerance mm : ± 0.75
Rated speed rpm : 1350

LOW IDLE

control lever
position degree : 68.0
tolerance degree : ± 4.0

Testing:

Rated speed rpm : 350
rack travel mm : 4.40
Tolerance mm : ± 0.10

Rated speed rpm : 250

CRT mm min. : > 7.56

Rated speed rpm : 415

TORQUE CONTROL

Rated speed rpm : 1050
rack travel mm : 13.80
Tolerance mm : ± 0.05

Rated speed rpm : 700
rack travel mm : 14.30
Tolerance mm : ± 0.05

Rated speed rpm : 1050
rack travel mm : 11.60
Tolerance mm : ± 0.15

ANEROID/ALTITUDE
COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : -

MEASUREMENT

Pressure hPa : 350
Rated speed rpm : 500
rack travel mm : 0.65
Tolerance mm : ± 0.05

Rated speed rpm : 500

Pressure hPa : 750
rack travel mm : 2.40
Tolerance mm : ± 0.10

START CUT-OUT

Rated speed rpm : > 100
Rated speed rpm : < 270

Check
speed 1/min : > 80
Check
speed 1/min : < 280

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1200
Rated speed rpm : 700
Del. quantity
cm³/1000 strokes : 234.0
cm³/1000 strokes : ± 2.0
Check tolerance
cm³/1000S. : ± 5.0
Spreed
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

Aneroid pressure
hPa : 1200
Rated speed rpm : 1050
Del. quantity
cm³/1000 strokes : 156.0
cm³/1000 strokes : ± 2.0
Check tolerance
cm³/1000S. : ± 5.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 135.0
cm³/1000 strokes : ± 1.0
Check tolerance
cm³/1000S. : ± 4.0
Spreed
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

BREAKAWAY

Rack travel in mm : 12.80
Rated speed rpm : 1095
Tolerance 1/min : ± 5

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 250.0
cm³/1000 strokes : ± 10.0

Check tolerance
cm³/1000S. : +- 14.0

LOW IDLE

Rated speed rpm : 350
Del. quantity
cm³/1000 strokes : 13.0
cm³/1000 strokes : +- 3.0
Check tolerance
cm³/1000S. : +- 6.0
Spreed
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 10.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 21.11.96
Test oil : ISO 4113

Combination No. : 0 402 648 981

Injection pump
Pump designation : PE8P120A320LS7839
: -10
EP type number : 0 412 628 855

Governor
Governor design. : RQ300/950PA971-10
Governor no. : 0 421 801 754

Cust. part No. : 0250749002

Customer-spec. information
Customer : MB-NFZ
Motor : OM442 LA
Power KW : 370.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 1.5
Tolerance bar : + 0.1

Tolerance l/h : + 10.0

Test nozzle holder
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : + 1.5

Test lines : 1 680 750 075
Outside diameter : 8.0
x inside diameter : 3.0
x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : + 1.0

Prestroke mm : 5.05
Tolerance mm : + 0.05
Check
tolerance mm : + 0.10

Rack travel in mm : 14.50
Tolerance mm : + 0.50

Firing order : 8- 7- 2- 6- 3
: - 5- 4- 1

Phasing : 0-45-90-135-180
: -225-270-315
Tolerance : + 0.30
Check
tolerance °NW : + 0.50

Start of delivery mark
Tolerance : + 0.10
Check
tolerance °NW : + 0.75

Barrel no. : 8

BASIC SETTING

Rated speed rpm : 550

Rack travel in mm : 15.20
 Tolerance mm : + 0.05

Del. quantity
 cm³/1000 strokes : 289.0

cm³/1000 strokes : + 1.0

Check tolerance
 cm³/1000S. : + 4.0

Spreed
 cm³/1000 strokes : 6.0

Check tolerance
 cm³/1000S. : 9.0

Rated speed rpm : 300

Rack travel in mm : 5.20
 Tolerance mm : + 0.10
 Del. quantity
 cm³/1000 strokes : 19.0
 cm³/1000 strokes : + 3.0
 Check tolerance
 cm³/1000S. : + 6.0
 Spreed
 cm³/1000 strokes : 6.0
 Check tolerance
 cm³/1000S. : 10.0

(B) SETTING OF INJECTION PUMP
 WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 300
 guide sleeve
 travel mm : 1.72
 Tolerance mm : + 0.20

Rated speed rpm : 1005
 guide sleeve
 travel mm : 6.34
 Tolerance mm : + 0.15

Rated speed rpm : 950
 guide sleeve
 travel mm : 6.00
 Tolerance mm : + 0.10

Rated speed rpm : 374
 guide sleeve
 travel mm : 3.81
 Tolerance mm : + 0.10

Rated speed rpm : 580
 guide sleeve
 travel mm : 6.00
 Tolerance mm : + 0.10

Rated speed rpm : 1190
 guide sleeve
 travel mm : 11.50
 Tolerance mm : + 0.50

GUIDE SLEEVE POSITION

Rated speed rpm : 600

Rack travel in mm : 20.00
 Tolerance mm : + 0.80

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 550
 Aneroid pressure
 hPa : 1200
 Del. quantity
 cm³/1000 strokes : 289.0
 cm³/1000 strokes : + 1.0
 Check tolerance
 cm³/1000S. : + 4.0
 Spreed
 cm³/1000 strokes : 6.0
 Check tolerance
 cm³/1000S. : 9.0

CONTROL LEVER

control lever
 position degree : 98.0
 tolerance degree : + 4.0

RATED SPEED

rack travel mm : 14.20
 Rated speed rpm : 998
 Tolerance 1/min : + 5

rack travel mm : 4.00
 Rated speed rpm : 1100
 Tolerance 1/min : + 15

rack travel mm : 0.75
 Tolerance mm : + 0.75
 Rated speed rpm : 1250

LOW IDLE

control lever
position degree : 72.0
tolerance degree : ± 4.0

Testing:

Rated speed rpm : 300
rack travel mm : 5.20
Tolerance mm : ± 0.10

rack travel mm : 2.00
Rated speed rpm : 390
Tolerance 1/min : ± 40

Rated speed rpm : 200

CRT mm min. : > 7.20

TORQUE CONTROL

Rated speed rpm : 550
rack travel mm : 15.20
Tolerance mm : ± 0.05

Rated speed rpm : 950
rack travel mm : 15.20
Tolerance mm : ± 0.10

ANEROID/ALTITUDE
COMPENSATOR TEST

SETTING

Rated speed rpm : 400
Pressure hPa : 1200
rack travel mm : 15.20
Tolerance mm : ± 0.05

MEASUREMENT

Pressure hPa : -
Rated speed rpm : 400
rack travel mm : 8.25
Tolerance mm : ± 0.15

Rated speed rpm : 400

Pressure hPa : 300
rack travel mm : 9.95
Tolerance mm : ± 0.20

Pressure hPa : 500
rack travel mm : 11.65
Tolerance mm : ± 0.20

START CUT-OUT

Rated speed rpm : > 100
Rated speed rpm : < 220

Check
speed 1/min : > 80
Check
speed 1/min : < 240

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1200
Rated speed rpm : 950
Del. quantity
cm³/1000 strokes : 271.0
cm³/1000 strokes : ± 3.0
Check tolerance
cm³/1000S. : ± 6.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 136.0
cm³/1000 strokes : ± 1.0
Check tolerance
cm³/1000S. : ± 4.0
Speed
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

BREAKAWAY

Rack travel in mm : 14.20
Rated speed rpm : 998
Tolerance 1/min : ± 5

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 255.0
cm³/1000 strokes : ± 20.0
Check tolerance
cm³/1000S. : ± 24.0

LOW IDLE

Rated speed rpm : 300
Del. quantity
cm³/1000 strokes : 19.0
cm³/1000 strokes : ± 3.0
Check tolerance
cm³/1000S. : ± 6.0
Spreed
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 10.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 22.11.96
Test oil : ISO 4113
Combination No. : 0 402 746 609A
Injection pump
Pump designation : PES6P130A720RS7411
EP type number : 0 412 736 808

Governor
Governor design. : RQ275/950PA1274
Governor no. : 0 421 801 807

Cust. part No. : 221 574

Customer-spec. information
Customer : RABA
Motor : SIEHE BEMERKUNG
Power KW : 190.0

TEST BENCH REQUIREMENTS

Inlet line : 4.2

Test oil inlet temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 1.5
Tolerance bar : ± 0.1

Overflow quantity min. l/h : 160
Tolerance l/h : ± 20.0

Test nozzle holder assembly : 1 688 901 105

Opening pressure bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant. per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 5.50
Tolerance mm : ± 0.05
Check tolerance mm : ± 0.10

Rack travel in mm : 20.50
Tolerance mm : ± 0.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.30
Check tolerance °NW : ± 0.50

Start of delivery mark

Tolerance : ± 0.50
Check tolerance °NW : ± 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 600

Rack travel in mm : 12.60
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 246.0

cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : ± 4.0

Spread
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

Rated speed rpm : 275

Rack travel in mm : 4.20
Tolerance mm : ± 0.10

Del. quantity
cm³/1000 strokes : 24.0
cm³/1000 strokes : ± 3.0

Check tolerance
cm³/1000S. : ± 6.0

Spread
cm³/1000 strokes : 8.0

Check tolerance
cm³/1000S. : 12.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 275
guide sleeve
travel mm : 2.06

Tolerance mm : ± 0.20

Rated speed rpm : 1103
guide sleeve
travel mm : 6.55

Tolerance mm : ± 0.15

Rated speed rpm : 1050
guide sleeve
travel mm : 6.00

Tolerance mm : ± 0.10

Rated speed rpm : 355
guide sleeve
travel mm : 4.25

Tolerance mm : ± 0.10

Rated speed rpm : 450
guide sleeve
travel mm : 6.00

Tolerance mm : ± 0.10

Rated speed rpm : 1290
guide sleeve
travel mm : 11.50

Tolerance mm : ± 0.50

GUIDE SLEEVE POSITION

Rated speed rpm : 1147

Rack travel in mm : 11.60
Tolerance mm : ± 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 600
Aneroid pressure
hPa : 1500

Del. quantity
cm³/1000 strokes : 246.0
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : ± 4.0

Spread
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

CONTROL LEVER

control lever
position degree : 33.0
tolerance degree : ± 4.0

control lever
position degree : 94.0
tolerance degree : ± 4.0

RATED SPEED

rack travel mm : 11.60
Rated speed rpm : 1095

Tolerance 1/min : ± 5

rack travel mm : 4.00
Rated speed rpm : 1180

Tolerance 1/min : ± 15

rack travel mm : 0.50
Tolerance mm : ± 0.50

Rated speed rpm : 1200

LOW IDLE

control lever
position degree : 73.0
tolerance degree : ± 4.0

control lever
position degree : 11.0
tolerance degree : ± 4.0

Testing:

Rated speed rpm : 275
rack travel mm : 4.20
Tolerance mm : ± 0.10

rack travel mm : 2.00
Rated speed rpm : 346
Tolerance 1/min : ± 20

Rated speed rpm : 175

CRT mm min. : > 7.22

TORQUE CONTROL

Rated speed rpm : 600
rack travel mm : 12.60
Tolerance mm : ± 0.05

Rated speed rpm : 1050
rack travel mm : 12.60
Tolerance mm : ± 0.10

ANEROID/ALTITUDE
COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 1500
rack travel mm : 12.60
Tolerance mm : ± 0.05

MEASUREMENT

Pressure hPa : -
Rated speed rpm : 500
rack travel mm : 8.20
Tolerance mm : ± 0.20

Rated speed rpm : 500

Pressure hPa : 260
rack travel mm : 9.20
Tolerance mm : ± 0.15

Pressure hPa : 440
rack travel mm : 11.00
Tolerance mm : ± 0.05

START CUT-OUT

Rated speed rpm : < 100
Rated speed rpm : > 195

Check
speed 1/min : < 80
Check
speed 1/min : > 215

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1500
Rated speed rpm : 1050
Del. quantity
cm³/1000 strokes : 235.0
cm³/1000 strokes : ± 3.0
Check tolerance
cm³/1000S. : ± 6.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 147.0
cm³/1000 strokes : ± 2.0
Check tolerance
cm³/1000S. : ± 4.0

BREAKAWAY

Rack travel in mm : 11.60
Rated speed rpm : 1095
Tolerance 1/min : ± 5

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.50
Tolerance mm : ± 0.50
Del. quantity
cm³/1000 strokes : 110.0
cm³/1000 strokes : ± 20.0
Check tolerance
cm³/1000S. : ± 24.0

LOW IDLE

Rated speed rpm : 275
Del. quantity
cm³/1000 strokes : 24.0
cm³/1000 strokes : ± 3.0
Check tolerance
cm³/1000S. : ± 6.0
Spreed
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 22.09.95
Test oil : ISO 4113
Combination No. : 0 402 746 957
Injection pump
Pump designation : PES6P120A720RS7292
: -1
EP type number : 0 412 726 939
Governor
Governor design. : RQV350...1150PA1074
: -2K
Governor no. : 0 421 815 367
Cust. part No. : 0250741002

Customer-spec. information
Customer : MB-NFZ
Motor : OM366LA
Power KW : 157.0

TEST BENCH REQUIREMENTS

Inlet line : 4.1
Test oil inlet
temp. °C : 40
Tolerance °C : +- 2.0
Overflow valve : 1 417 413 047
Inlet press. bar : 1.5
Tolerance bar : +- 0.1
Overflow quantity
min. l/h : 100
Tolerance l/h : +- 10.0
Test nozzle holde
assembly : 1 688 901 105
Opening pressure
bar : 208.5

Tolerance bar : +- 1.5
Test lines : 1 680 750 075
Outside diameter : 8.0
x inside diameter : 3.0
x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : +- 1.0
Prestroke mm : 4.00
Tolerance mm : +- 0.05
Check
tolerance mm : +- 0.10
Rack travel in mm : 20.50
Tolerance mm : +- 0.50
Firing order : 1- 5- 3- 6- 2-
: 4
Phasing : 0-60-120-180-240
: -300
Tolerance : +- 0.30
Check
tolerance *NW : +- 0.75
Start of delivery blocking
*NW after s.o.d. : 3.30
Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1150

Rack travel in mm : 14.40
 Tolerance mm : +- 0.05

Del. quantity
 cm³/1000 strokes : 280.0

cm³/1000 strokes : +- 1.0

Check tolerance
 cm³/1000S. : +- 4.0

Spreed
 cm³/1000 strokes : 8.0

Check tolerance
 cm³/1000S. : 12.0

Rated speed rpm : 350

Rack travel in mm : 6.00
 Tolerance mm : +- 0.10
 Del. quantity
 cm³/1000 strokes : 13.0
 cm³/1000 strokes : +- 3.0
 Check tolerance
 cm³/1000S. : +- 6.0
 Spreed
 cm³/1000 strokes : 4.0
 Check tolerance
 cm³/1000S. : 8.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 350
 guide sleeve
 travel mm : 1.53
 Tolerance mm : +- 0.20

Rated speed rpm : 1206
 guide sleeve
 travel mm : 9.35
 Tolerance mm : +- 0.15

Rated speed rpm : 855
 guide sleeve
 travel mm : 5.56
 Tolerance mm : +- 0.25

Rated speed rpm : 550
 guide sleeve
 travel mm : 3.17
 Tolerance mm : +- 0.25

Rated speed rpm : 1480
 guide sleeve
 travel mm : 13.50
 Tolerance mm : +- 0.50

GUIDE SLEEVE POSITION

Rated speed rpm : 1331
 Rack travel in mm : 13.50
 Tolerance mm : +- 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1150
 Aneroid pressure
 hPa : 1500
 Del. quantity
 cm³/1000 strokes : 280.0
 cm³/1000 strokes : +- 1.0
 Check tolerance
 cm³/1000S. : +- 4.0
 Spreed
 cm³/1000 strokes : 8.0
 Check tolerance
 cm³/1000S. : 12.0

CONTROL LEVER

control lever
 position degree : 109.0
 tolerance degree : +- 4.0

RATED SPEED

rack travel mm : 13.40
 Rated speed rpm : 1195
 Tolerance 1/min : +- 5

rack travel mm : 4.00
 Rated speed rpm : 1305
 Tolerance 1/min : +- 15

rack travel mm : 0.70
 Tolerance mm : +- 0.70
 Rated speed rpm : 1400

LOW IDLE

control lever
 position degree : 65.0
 tolerance degree : +- 4.0

Testing:

Rated speed rpm : 350
rack travel mm : 6.00
Tolerance mm : ± 0.10

Rated speed rpm : 250

CRT mm min. : > 6.88

Rated speed rpm : 400

TORQUE CONTROL

Rated speed rpm : 1150
rack travel mm : 14.40
Tolerance mm : ± 0.05

Rated speed rpm : 950
rack travel mm : 14.25
Tolerance mm : ± 0.10

Rated speed rpm : 750
rack travel mm : 13.70
Tolerance mm : ± 0.10

Rated speed rpm : 600
rack travel mm : 13.20
Tolerance mm : ± 0.10

ANEROID/ALTITUDE
COMPENSATOR TEST

SETTING

Rated speed rpm : 1150
Pressure hPa : 1500
rack travel mm : 14.40
Tolerance mm : ± 0.05

MEASUREMENT

Pressure hPa : -
Rated speed rpm : 1150
rack travel mm : 10.50
Tolerance mm : ± 0.15

Rated speed rpm : 1150

Pressure hPa : 1050
rack travel mm : 13.70
Tolerance mm : ± 0.05

Pressure hPa : 400
rack travel mm : 11.30
Tolerance mm : ± 0.15

START CUT-OUT

Rated speed rpm : > 100
Rated speed rpm : < 270

Check
speed 1/min : > 80
Check
speed 1/min : < 290

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1500
Rated speed rpm : 750
Del. quantity
cm³/1000 strokes : 285.0
cm³/1000 strokes : ± 2.0
Check tolerance
cm³/1000S. : ± 5.0
Spreed
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

Aneroid pressure
hPa : 1500
Rated speed rpm : 600
Del. quantity
cm³/1000 strokes : 277.0
cm³/1000 strokes : ± 3.0
Check tolerance
cm³/1000S. : ± 6.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 143.0
cm³/1000 strokes : ± 1.0
Check tolerance
cm³/1000S. : ± 4.0

BREAKAWAY

Rack travel in mm : 13.40
Rated speed rpm : 1195
Tolerance 1/min : ± 5

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 13.80

Tolerance mm : ± 0.20
Del. quantity
cm³/1000 strokes : 175.0
cm³/1000 strokes : ± 15.0
Check tolerance
cm³/1000S. : ± 19.0

LOW IDLE

Rated speed rpm : 350
Del. quantity
cm³/1000 strokes : 13.0
cm³/1000 strokes : ± 3.0
Check tolerance
cm³/1000S. : ± 6.0
Speed
cm³/1000 strokes : 4.0
Check tolerance
cm³/1000S. : 8.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 22.11.96
Test oil : ISO 4113

Combination No. : 0 402 798 201

Injection pump
Pump designation : PES8H120/720LS1003
EP type number : 0 412 728 201

Governor
Governor design. : RE33
Governor no. : 0 421 890 358

Cust. part No. : 1364711

Customer-spec. information
Customer : SCANIA
Motor : DSC 1413
Power KW : 390.0

TEST BENCH REQUIREMENTS

Inlet line : 4(EHAB)

Test oil inlet temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 082

Inlet press. bar : 3.0
Tolerance bar : ± 0.1

Test nozzle holder assembly : 1 688 901 105

Opening pressure bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

J20

x inside diameter : 3.0
x length mm : 600

REMARKS

Pump-specific values in Section (B) must be observed!

(A) INJECTION PUMP SETTINGS
No basic setting.
Setting of constant delivery under Section C.

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 8.00
Tolerance mm : ± 0.05
Check tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 0.50

Firing order : 1- 2- 7- 3- 4
 : - 5- 6- 8

Phasing : 0-45-90-135-180
 : -225-270-315
Tolerance : ± 0.50
Check tolerance *NW : ± 0.75

Start of delivery blocking

Tolerance : ± 0.10
Check tolerance *NW : ± 0.75

Barrel no. : 1

(B) POSITIONER TESTING

Warm-up time: 3 minutes at
n=600 min⁻¹, Uact = 2.5 V

TESTING & SETTING RACK TRAVEL SENSOR
POSITION

Engine speed min-1: 0

Setting point
(P, R and H pump)

Uact V : 3.100
CRT mm : 13.00
Tolerance mm : +/- 0.05
Check
tolerance mm : +/- 0.10

Check value
(P, R and H pump)

Uact V : 1.700
CRT mm : 6.15
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.30

Setting point
(M pump)

Uact V : 3.100
CRT mm : 12.50
Tolerance mm : +/- 0.05
Check
tolerance mm : +/- 0.10

Check value
(M pump)

Uact V : 1.700
CRT mm : 5.50
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.30

Stop position

Uact V : Value with
deenergised adjusting magnet
and control rod in
stop position.

CRT mm : 0.75
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.35

ENGINE-SPEED SENSOR
(ALL P and R pumps not
H and M pumps)

Test with control rod
in stop position

Engine speed min-1: 60
Amplitude V : 1.4
Tolerance V : +/- 0.6
Check
tolerance V : +/- 1.20

Engine speed min-1: 600
Difference
Amplitude to
Amplitude V : max.1.4

(C) INJECTION PUMP WITH POSITIONER

TEST POINT V1

Rated speed rpm : 700
Uact V : 3.150
Prestroke solenoid
Stroke mm : 7.60
Del. quantity
cm³/1000 strokes : 344.5
cm³/1000 strokes : +/- 1.0
Check tolerance
cm³/1000S. : +/- 6.0
Spreed
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

FUEL DELIVERY CHARACTERISTICS

Rated speed rpm : 950
Uact V : 3.450
Prestroke solenoid
Stroke mm : 8.20
Del. quantity
cm³/1000 strokes : 365.0
cm³/1000 strokes : +/- 4.0
Check tolerance
cm³/1000S. : +/- 7.0

TEST POINT L1

Rated speed rpm : 250
Uact V : 1.400
Tolerance Volt : +/- 0.060
Check tolerance
Volt : +/- 0.060
Prestroke solenoid
Stroke mm : 9.50
Del. quantity
cm³/1000 strokes : 31.0
cm³/1000 strokes : +/- 3.0
Spreed
cm³/1000 strokes : 4.0

Check tolerance
cm³/1000s. : 8.0

End of test specification sheet



BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 27.11.96
Test oil : ISO 4113

Combination No. : 0 403 244 056

Injection pump
Pump designation : PES4MW100/720RS1525
EP type number : 0 413 204 022

Governor
Governor design. : RQ300/1300MW160
Governor no. : 0 420 082 077

Cust. part No. : 0270749502

Customer-spec. information
Customer : MB-NFZ
Motor : OM364LA
Power KW : 103.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 419 992 198

Inlet press. bar : 1.5

Test nozzle holde
assembly : 1 688 901 101

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 31.0
Tolerance bar : ± 1.0

Prestroke mm : 4.55
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 20.00
Tolerance mm : ± 1.00

Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

BASIC SETTING

Rated speed rpm : 1300

Rack travel in mm : 13.30
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 119.0

cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : ± 3.0

Speed
cm³/1000 strokes : 3.5

Check tolerance
cm³/1000S. : 6.0

Rated speed rpm : 300

Rack travel in mm : 3.90

Tolerance mm : ± 0.10

Del. quantity
cm³/1000 strokes : 12.0

cm³/1000 strokes : ± 2.0

Check tolerance
cm³/1000S. : ± 4.5

Spreed
cm³/1000 strokes : 3.5

Check tolerance
cm³/1000S. : 5.5

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 300

guide sleeve
travel mm : 1.12

Tolerance mm : ± 0.20

Rated speed rpm : 1353

guide sleeve
travel mm : 6.52

Tolerance mm : ± 0.15

Rated speed rpm : 1300

guide sleeve
travel mm : 6.00

Tolerance mm : ± 0.10

Rated speed rpm : 458

guide sleeve
travel mm : 2.45

Tolerance mm : ± 0.10

Rated speed rpm : 750

guide sleeve
travel mm : 6.00

Tolerance mm : ± 0.10

Rated speed rpm : 1570

guide sleeve
travel mm : 11.50

Tolerance mm : ± 0.50

GUIDE SLEEVE POSITION

Rated speed rpm : 800

Rack travel in mm : 20.00

Tolerance mm : ± 0.80

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1300

Aneroid pressure
hPa : 1200

Del. quantity
cm³/1000 strokes : 119.0

cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : ± 3.0

Spreed
cm³/1000 strokes : 3.5

Check tolerance
cm³/1000S. : 6.0

CONTROL LEVER

control lever

position degree : 89.0

tolerance degree : ± 4.0

RATED SPEED

rack travel mm : 12.30

Rated speed rpm : 1345

Tolerance 1/min : ± 5

rack travel mm : 4.00

Rated speed rpm : 1465

Tolerance 1/min : ± 15

rack travel mm : 0.50

Tolerance mm : ± 0.50

Rated speed rpm : 1575

LOW IDLE

control lever

position degree : 35.0

tolerance degree : ± 4.0

Testing:

Rated speed rpm : 300

rack travel mm : 3.90

Tolerance mm : ± 0.10

Rated speed rpm : 200

CRT mm min. : > 4.30

TORQUE CONTROL

Rated speed rpm : 1300
rack travel mm : 13.30
Tolerance mm : ± 0.05

Rated speed rpm : 750
rack travel mm : 13.30
Tolerance mm : ± 0.20

ANEROID/ALTITUDE
COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 1200
rack travel mm : 13.30
Tolerance mm : ± 0.05

MEASUREMENT

Pressure hPa : -
Rated speed rpm : 500
Tolerance mm : ± 0.10

Rated speed rpm : 500

Pressure hPa : 400
rack travel mm : 2.50
Tolerance mm : ± 0.10

Pressure hPa : 200
rack travel mm : 0.50
Tolerance mm : ± 0.10

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1200
Rated speed rpm : 750
Del. quantity
cm³/1000 strokes : 117.0
cm³/1000 strokes : ± 1.5
Check tolerance
cm³/1000S. : ± 4.0
Spreed
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 9.0

Aneroid pressure
hPa : 1200

J25

Rated speed rpm : 1300
Del. quantity
cm³/1000 strokes : 105.0
cm³/1000 strokes : ± 1.5
Check tolerance
cm³/1000S. : ± 3.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 73.0
cm³/1000 strokes : ± 1.0
Check tolerance
cm³/1000S. : ± 3.0

BREAKAWAY

Rack travel in mm : 12.30
Rated speed rpm : 1345
Tolerance 1/min : ± 5

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 150.0
cm³/1000 strokes : ± 5.0
Check tolerance
cm³/1000S. : ± 8.0

LOW IDLE

Rated speed rpm : 300
Del. quantity
cm³/1000 strokes : 12.0
cm³/1000 strokes : ± 2.0
Check tolerance
cm³/1000S. : ± 4.5
Spreed
cm³/1000 strokes : 3.5
Check tolerance
cm³/1000S. : 5.5

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 21.11.96
Test oil : ISO 4113
Combination No. : D 403 456 120A

Injection pump
Pump designation : PES6MW100/321RS1210
EP type number : D 413 406 201

Governor
Governor design. : RQ250/1050MW84-11
Governor no. : D 420 082 066

Cust. part No. : 3-757?

Customer-spec. information
Customer : MAN
Motor : D 0826 LUH 06
Power KW : 184.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 1 419 992 198

Inlet press. bar : 1.5

Test nozzle holde
assembly : D 0 681 343 009

Opening pressure
bar : 173.5
Tolerance bar : + 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 31.0
Tolerance bar : + 1.0

Prestroke mm : 3.55
Tolerance mm : + 0.05
Check
tolerance mm : + 0.10

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : + 0.50
Check
tolerance °NW : + 0.75

Start of delivery mark

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 800

Rack travel in mm : 14.05
Tolerance mm : + 0.05

Del. quantity
cm3/1000 strokes : 162.0
cm3/1000 strokes : + 1.0

Check tolerance
cm3/1000S. : + 4.0

Speed
cm3/1000 strokes : 4.0

Check tolerance
cm³/1000S. : 7.5

Rated speed rpm : 250

Rack travel in mm : 5.10
Tolerance mm : +- 0.10
Del. quantity
cm³/1000 strokes : 15.0
cm³/1000 strokes : +- 2.0
Check tolerance
cm³/1000S. : +- 4.5
Spreed
cm³/1000 strokes : 3.5
Check tolerance
cm³/1000S. : 5.5

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 250
guide sleeve
travel mm : 1.25
Tolerance mm : +- 0.20

Rated speed rpm : 1110
guide sleeve
travel mm : 6.35
Tolerance mm : +- 0.15

Rated speed rpm : 800
guide sleeve
travel mm : 6.00
Tolerance mm : +- 0.10

Rated speed rpm : 335
guide sleeve
travel mm : 3.16
Tolerance mm : +- 0.10

Rated speed rpm : 470
guide sleeve
travel mm : 6.00
Tolerance mm : +- 0.10

Rated speed rpm : 1280
guide sleeve
travel mm : 11.50
Tolerance mm : +- 0.50

GUIDE SLEEVE POSITION

Rated speed rpm : 600

Rack travel in mm : 20.00
Tolerance mm : +- 0.80

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 800
Aneroid pressure
hPa : 1100
Del. quantity
cm³/1000 strokes : 162.0
cm³/1000 strokes : +- 1.0
Check tolerance
cm³/1000S. : +- 4.0
Spreed
cm³/1000 strokes : 4.0
Check tolerance
cm³/1000S. : 7.5

CONTROL LEVER

control lever
position degree : 98.0
tolerance degree : +- 4.0

RATED SPEED

rack travel mm : 13.00
Rated speed rpm : 1105
Tolerance 1/min : +- 8

rack travel mm : 4.00
Rated speed rpm : 1185
Tolerance 1/min : +- 15

rack travel mm : 0.50
Tolerance mm : +- 0.50
Rated speed rpm : 1300

LOW IDLE

control lever
position degree : 71.0
tolerance degree : +- 4.0

Testing:

Rated speed rpm : 250
rack travel mm : 5.10
Tolerance mm : +- 0.10

Rated speed rpm : 150

CRT mm min. : > 6.50

TORQUE CONTROL

Rated speed rpm : 800
rack travel mm : 14.05
Tolerance mm : ± 0.05

Rated speed rpm : 600
rack travel mm : 14.05
Tolerance mm : ± 0.05

Rated speed rpm : 1050
rack travel mm : 14.05
Tolerance mm : ± 0.05

ANEROID/ALTITUDE
COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 1100
rack travel mm : 14.05
Tolerance mm : ± 0.05

MEASUREMENT

Pressure hPa : -
Rated speed rpm : 500
rack travel mm : 9.45
Tolerance mm : ± 0.05

Rated speed rpm : 500

Pressure hPa : 700
rack travel mm : 13.35
Tolerance mm : ± 0.15

Pressure hPa : 150
rack travel mm : 9.75
Tolerance mm : ± 0.05

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1100
Rated speed rpm : 600
Del. quantity
cm³/1000 strokes : 163.0
cm³/1000 strokes : ± 2.0
Check tolerance
cm³/1000S. : ± 5.0
Spreed
cm³/1000 strokes : 6.0

Check tolerance
cm³/1000S. : 9.0

Aneroid pressure
hPa : 1100
Rated speed rpm : 1050
Del. quantity
cm³/1000 strokes : 157.0
cm³/1000 strokes : ± 2.0
Check tolerance
cm³/1000S. : ± 5.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 68.0
cm³/1000 strokes : ± 1.0
Check tolerance
cm³/1000S. : ± 3.0

BREAKAWAY

Rack travel in mm : 13.00
Rated speed rpm : 1105
Tolerance 1/min : ± 8

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 70.0
cm³/1000 strokes : ± 10.0
Check tolerance
cm³/1000S. : ± 13.0

LOW IDLE

Rated speed rpm : 250
Del. quantity
cm³/1000 strokes : 15.0
cm³/1000 strokes : ± 2.0
Check tolerance
cm³/1000S. : ± 4.5
Spreed
cm³/1000 strokes : 3.5
Check tolerance
cm³/1000S. : 5.5

End of test specification sheet



BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 21.11.96
Test oil : ISO 4113
Combination No. : 0 403 474 021E
Injection pump
Pump designation : PES4MW100/720RS1181
EP type number : 0 413 404 107
Governor
Governor design. : RSV400...1000MW1A348
Governor no. : 0 420 085 183

Cust. part No. :

Customer-spec. information
Customer : LIEBHERR
Motor : D924TI-E A2
Power KW : 132.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1
Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0
Overflow valve : 1 417 413 049
Inlet press. bar : 1.5
Test nozzle holde
assembly : 0 681 343 009
Opening pressure
bar : 173.5
Tolerance bar : ± 1.5
Test lines : 1 680 750 008
Outside diameter : 6.0

K02

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 31.0
Tolerance bar : ± 1.0
Prestroke mm : 3.05
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10
Rack travel in mm : 10.50
Tolerance mm : ± 1.50
Firing order : 1- 3- 4- 2
Phasing : 0-90-180-270
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75
Start of delivery mark
Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1000
Rack travel in mm : 13.60
Tolerance mm : ± 0.05
Del. quantity
cm3/1000 strokes : 184.0
cm3/1000 strokes : ± 1.0
Check tolerance
cm3/1000S. : ± 4.0
Spreed

cm³/1000 strokes : 4.0

Check tolerance
cm³/1000S. : 7.5

Rated speed rpm : 400

Rack travel in mm : 4.60
Tolerance mm : + 0.20

Del. quantity
cm³/1000 strokes : 20.0
cm³/1000 strokes : + 2.0

Check tolerance
cm³/1000S. : + 4.5

Spreed
cm³/1000 strokes : 3.5
Check tolerance
cm³/1000S. : 5.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE POSITION

Rated speed rpm : 800

Rack travel in mm : 0.65
Tolerance mm : + 0.35

governor spring
pre-tension
click setting x : 3.25

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1000
Aneroid pressure
hPa : 1250

Del. quantity
cm³/1000 strokes : 184.0
cm³/1000 strokes : + 1.0
Check tolerance
cm³/1000S. : + 4.0

Spreed
cm³/1000 strokes : 4.0
Check tolerance
cm³/1000S. : 7.5

CONTROL LEVER

control lever
position degree : 101.0

RATED SPEED

rack travel mm : 12.60
Rated speed rpm : 1025
Tolerance 1/min : + 5

rack travel mm : 4.00
Rated speed rpm : 1075
Tolerance 1/min : + 10

rack travel mm : 1.00
Tolerance mm : + 0.70
Rated speed rpm : 1175

rack travel mm : 4.00
Rated speed rpm : 1085

LOW IDLE

control lever
position degree : 73.0

Setting point w/out bumper spring

Rated speed rpm : 400
rack travel mm : 4.10

Testing:

Rated speed rpm : 400
rack travel mm : 4.60
Tolerance mm : + 0.20

Rated speed rpm : 100

CRT mm min. : > 19.00

TORQUE CONTROL

Rated speed rpm : 1000
rack travel mm : 13.60
Tolerance mm : + 0.05

Rated speed rpm : 500
rack travel mm : 13.60
Tolerance mm : + 0.05

Rated speed rpm : 700
rack travel mm : 13.60
Tolerance mm : + 0.05

ANEROID/ALTITUDE
COMPENSATOR TEST

SETTING

Rated speed rpm : 550
Pressure hPa : -
rack travel mm : 11.60
Tolerance mm : \pm 0.05

MEASUREMENT

Pressure hPa : 1250
Rated speed rpm : 550
rack travel mm : 13.60
Tolerance mm : \pm 0.05

Rated speed rpm : 550

Pressure hPa : 590
rack travel mm : 12.10
Tolerance mm : \pm 0.05

Pressure hPa : 720
rack travel mm : 13.00
Tolerance mm : \pm 0.10

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1250
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 184.0
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 5.0
Spreed
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 9.0

Aneroid pressure
hPa : 1250
Rated speed rpm : 700
Del. quantity
cm³/1000 strokes : 191.5
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 5.0

Aneroid pressure
hPa : -
Rated speed rpm : 550

K04

Del. quantity
cm³/1000 strokes : 149.0
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 4.0

BREAKAWAY

Rack travel in mm : 12.60
Rated speed rpm : 1025
Tolerance 1/min : \pm 5

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.00
Tolerance mm : \pm 1.00
Del. quantity
cm³/1000 strokes : 135.0
cm³/1000 strokes : \pm 5.0
Check tolerance
cm³/1000S. : \pm 8.0

LOW IDLE

Rated speed rpm : 400
Del. quantity
cm³/1000 strokes : 20.0
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.5
Spreed
cm³/1000 strokes : 3.5
Check tolerance
cm³/1000S. : 5.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 21.11.96
Test oil : ISO 4113
Combination No. : 0 403 474 021F
Injection pump
Pump designation : PES4MW100/720RS1181
EP type number : 0 413 404 107
Governor
Governor design. : RSV400...1000MW1A348
Governor no. : 0 420 085 183

Cust. part No. :

Customer-spec. information
Customer : LIEBHERR
Motor : D924 T-E A2
Power KW : 120.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1
Test oil inlet temp. °C : 40
Tolerance °C : ± 2.0
Overflow valve : 1 417 413 049
Inlet press. bar : 1.5
Test nozzle holder assembly : 0 681 343 009
Opening pressure bar : 173.5
Tolerance bar : ± 1.5
Test lines : 1 680 750 008
Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 31.0
Tolerance bar : ± 1.0
Prestroke mm : 3.05
Tolerance mm : ± 0.05
Check tolerance mm : ± 0.10
Rack travel in mm : 10.50
Tolerance mm : ± 1.50
Firing order : 1- 3- 4- 2
Phasing : 0-90-180-270
Tolerance : ± 0.50
Check tolerance °NW : ± 0.75
Start of delivery mark
Barrel no. : 1

BASIC SETTING

Rated speed rpm : 900
Rack travel in mm : 13.20
Tolerance mm : ± 0.05
Del. quantity cm³/1000 strokes : 176.0
cm³/1000 strokes : ± 1.0
Check tolerance cm³/1000s. : ± 4.0
Speed

cm³/1000 strokes : 4.0

 Check tolerance
 cm³/1000S. : 7.5
 Rated speed rpm : 400

 Rack travel in mm : 4.50
 Tolerance mm : ± 0.20
 Del. quantity
 cm³/1000 strokes : 25.0
 cm³/1000 strokes : ± 2.0
 Check tolerance
 cm³/1000S. : ± 4.5
 Spreed
 cm³/1000 strokes : 3.5
 Check tolerance
 cm³/1000S. : 5.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE POSITION

Rated speed rpm : 800

 Rack travel in mm : 0.65
 Tolerance mm : ± 0.35

 governor spring
 pre-tension
 click setting x : 3.75

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 900
 Aneroid pressure
 hPa : 1250
 Del. quantity
 cm³/1000 strokes : 176.0
 cm³/1000 strokes : ± 1.0
 Check tolerance
 cm³/1000S. : ± 4.0
 Spreed
 cm³/1000 strokes : 4.0
 Check tolerance
 cm³/1000S. : 7.5

CONTROL LEVER

control lever
 position degree : 96.0

RATED SPEED

rack travel mm : 12.20
 Rated speed rpm : 915
 Tolerance 1/min : ± 5

 rack travel mm : 4.00
 Rated speed rpm : 975
 Tolerance 1/min : ± 10

 rack travel mm : 1.00
 Tolerance mm : ± 0.70
 Rated speed rpm : 1075

 rack travel mm : 4.00
 Rated speed rpm : 980

LOW IDLE

control lever
 position degree : 78.0

 Setting point w/out bumper spring

 Rated speed rpm : 550
 rack travel mm : 4.10

 Testing:

 Rated speed rpm : 550
 rack travel mm : 4.50
 Tolerance mm : ± 0.20

 Rated speed rpm : 100

 CRT mm min. : > 19.00

TORQUE CONTROL

Rated speed rpm : 900
 rack travel mm : 13.20
 Tolerance mm : ± 0.05

 Rated speed rpm : 500
 rack travel mm : 13.20
 Tolerance mm : ± 0.05

 Rated speed rpm : 600
 rack travel mm : 13.20
 Tolerance mm : ± 0.05

ANEROID/ALTITUDE
COMPENSATOR TEST

SETTING

Rated speed rpm : 550
Pressure hPa : -
rack travel mm : 12.20
Tolerance mm : ± 0.05

MEASUREMENT

Pressure hPa : 1250
Rated speed rpm : 550
rack travel mm : 13.20
Tolerance mm : ± 0.05

Rated speed rpm : 550

Pressure hPa : 550
rack travel mm : 12.45
Tolerance mm : ± 0.05

Pressure hPa : 640
rack travel mm : 13.05
Tolerance mm : ± 0.10

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1250
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 178.0
cm³/1000 strokes : ± 2.0
Check tolerance
cm³/1000S. : ± 5.0
Spreed
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 9.0

Aneroid pressure
hPa : 1250
Rated speed rpm : 600
Del. quantity
cm³/1000 strokes : 180.0
cm³/1000 strokes : ± 2.0
Check tolerance
cm³/1000S. : ± 5.0

Aneroid pressure
hPa : -
Rated speed rpm : 550

K07

Del. quantity
cm³/1000 strokes : 156.0
cm³/1000 strokes : ± 1.0
Check tolerance
cm³/1000S. : ± 4.0

BREAKAWAY

Rack travel in mm : 12.20
Rated speed rpm : 915
Tolerance 1/min : ± 5

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.00
Tolerance mm : ± 1.00
Del. quantity
cm³/1000 strokes : 135.0
cm³/1000 strokes : ± 5.0
Check tolerance
cm³/1000S. : ± 8.0

LOW IDLE

Rated speed rpm : 400
Del. quantity
cm³/1000 strokes : 25.0
cm³/1000 strokes : ± 2.0
Check tolerance
cm³/1000S. : ± 4.5
Spreed
cm³/1000 strokes : 3.5
Check tolerance
cm³/1000S. : 5.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 21.11.96
Test oil : ISO 4113
Combination No. : 0 403 474 021G
Injection pump
Pump designation : PES4MW100/720RS1181
EP type number : 0 413 404 107
Governor
Governor design. : RSV400...1000MW1A348
Governor no. : 0 420 085 183

Cust. part No. :

Customer-spec. information
Customer : LIEBHERR
Motor : D924 T-E A2
Power KW : 121.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1
Test oil inlet
temp. °C : 40
Tolerance °C : + 2.0
Overflow valve : 1 417 413 049
Inlet press. bar : 1.5
Test nozzle holde
assembly : 0 681 343 009
Opening pressure
bar : 173.5
Tolerance bar : + 1.5
Test lines : 1 680 750 008
Outside diameter : 6.0

K08

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 31.0
Tolerance bar : + 1.0
Prestroke mm : 3.05
Tolerance mm : + 0.05
Check
tolerance mm : + 0.10
Rack travel in mm : 10.50
Tolerance mm : + 1.50
Firing order : 1- 3- 4- 2
Phasing : 0-90-180-270
Tolerance : + 0.50
Check
tolerance °NW : + 0.75
Start of delivery mark
Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1000
Rack travel in mm : 13.00
Tolerance mm : + 0.05
Del. quantity
cm³/1000 strokes : 174.0
cm³/1000 strokes : + 1.0
Check tolerance
cm³/1000S. : + 4.0
Speed

cm³/1000 strokes : 4.0

Check tolerance
cm³/1000S. : 7.5

Rated speed rpm : 400

Rack travel in mm : 4.50
Tolerance mm : + 0.20

Del. quantity
cm³/1000 strokes : 25.0
cm³/1000 strokes : + 2.0
Check tolerance
cm³/1000S. : + 4.5

Speed
cm³/1000 strokes : 3.5
Check tolerance
cm³/1000S. : 5.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE POSITION

Rated speed rpm : 800

Rack travel in mm : 0.85
Tolerance mm : + 0.35

governor spring
pre-tension
click setting x : 4.25

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1000
Aneroid pressure
hPa : 1380

Del. quantity
cm³/1000 strokes : 174.0
cm³/1000 strokes : + 1.0
Check tolerance
cm³/1000S. : + 4.0

Speed
cm³/1000 strokes : 4.0
Check tolerance
cm³/1000S. : 7.5

CONTROL LEVER

control lever
position degree : 102.0

RATED SPEED

rack travel mm : 12.00
Rated speed rpm : 1020
Tolerance 1/min : + 5

rack travel mm : 4.00
Rated speed rpm : 1080
Tolerance 1/min : + 10

rack travel mm : 1.00
Tolerance mm : + 0.70
Rated speed rpm : 1200

rack travel mm : 4.00
Rated speed rpm : 1090

LOW IDLE

control lever
position degree : 80.0

Setting point w/out bumper spring

Rated speed rpm : 550
rack travel mm : 4.10

Testing:

Rated speed rpm : 550
rack travel mm : 4.50
Tolerance mm : + 0.20

Rated speed rpm : 100

CRT mm min. : > 19.00

TORQUE CONTROL

Rated speed rpm : 1000
rack travel mm : 13.00
Tolerance mm : + 0.05

Rated speed rpm : 500
rack travel mm : 13.00
Tolerance mm : + 0.05

Rated speed rpm : 700
rack travel mm : 13.00
Tolerance mm : + 0.05

ANEROID/ALTITUDE
COMPENSATOR TEST

SETTING

Rated speed rpm : 550
Pressure hPa : -
rack travel mm : 11.80
Tolerance mm : +- 0.05

MEASUREMENT

Pressure hPa : 1380
Rated speed rpm : 550
rack travel mm : 13.00
Tolerance mm : +- 0.05

Rated speed rpm : 550

Pressure hPa : 560
rack travel mm : 12.10
Tolerance mm : +- 0.05

Pressure hPa : 660
rack travel mm : 12.70
Tolerance mm : +- 0.10

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1380
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 173.0
cm³/1000 strokes : +- 2.0
Check tolerance
cm³/1000S. : +- 5.0
Spreed
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 9.0

Aneroid pressure
hPa : 1380
Rated speed rpm : 700
Del. quantity
cm³/1000 strokes : 180.0
cm³/1000 strokes : +- 2.0
Check tolerance
cm³/1000S. : +- 5.0

Aneroid pressure
hPa : -
Rated speed rpm : 550

K10

Del. quantity
cm³/1000 strokes : 148.0
cm³/1000 strokes : +- 1.0
Check tolerance
cm³/1000S. : +- 4.0

BREAKAWAY

Rack travel in mm : 12.00
Rated speed rpm : 1020
Tolerance 1/min : +- 5

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.00
Tolerance mm : +- 1.00
Del. quantity
cm³/1000 strokes : 135.0
cm³/1000 strokes : +- 5.0
Check tolerance
cm³/1000S. : +- 8.0

LOW IDLE

Rated speed rpm : 400
Del. quantity
cm³/1000 strokes : 25.0
cm³/1000 strokes : +- 2.0
Check tolerance
cm³/1000S. : +- 4.5
Spreed
cm³/1000 strokes : 3.5
Check tolerance
cm³/1000S. : 5.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 21.11.96
Test oil : ISO 4113
Combination No. : 0 403 474 021H
Injection pump
Pump designation : PES4MW100/720RS1181
EP type number : 0 413 404 107
Governor
Governor design. : RSV400...1000MW1A348
Governor no. : 0 420 085 183

Cust. part No. :

Customer-spec. information
Customer : LIEBHERR
Motor : D924TI-E A2
Power kW : 125.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1
Test oil inlet temp. °C : 40
Tolerance °C : ± 2.0
Overflow valve : 1 417 413 049
Inlet press. bar : 1.5
Test nozzle holder assembly : 0 681 343 009
Opening pressure bar : 173.5
Tolerance bar : ± 1.5
Test lines : 1 680 750 008
Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 31.0
Tolerance bar : ± 1.0
Prestroke mm : 3.05
Tolerance mm : ± 0.05
Check tolerance mm : ± 0.10
Rack travel in mm : 10.50
Tolerance mm : ± 1.50
Firing order : 1- 3- 4- 2
Phasing : 0-90-180-270
Tolerance : ± 0.50
Check tolerance °NW : ± 0.75
Start of delivery mark
Barrel no. : 1

BASIC SETTING

Rated speed rpm : 900
Rack travel in mm : 13.30
Tolerance mm : ± 0.05
Del. quantity cm3/1000 strokes : 178.0
cm3/1000 strokes : ± 1.0
Check tolerance cm3/1000S. : ± 4.0
Speed

cm³/1000 strokes : 4.0

 Check tolerance
 cm³/1000S. : 7.5
 Rated speed rpm : 400

 Rack travel in mm : 4.60
 Tolerance mm : ± 0.20
 Del. quantity
 cm³/1000 strokes : 12.0
 cm³/1000 strokes : ± 2.0
 Check tolerance
 cm³/1000S. : ± 4.5
 Spreed
 cm³/1000 strokes : 3.5
 Check tolerance
 cm³/1000S. : 5.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE POSITION

Rated speed rpm : 800

 Rack travel in mm : 0.65
 Tolerance mm : ± 0.35

 governor spring
 pre-tension
 click setting x : 4.50

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 900
 Aneroid pressure
 hPa : 1100
 Del. quantity
 cm³/1000 strokes : 178.0
 cm³/1000 strokes : ± 1.0
 Check tolerance
 cm³/1000S. : ± 4.0
 Spreed
 cm³/1000 strokes : 4.0
 Check tolerance
 cm³/1000S. : 7.5

CONTROL LEVER

control lever
 position degree : 96.0

RATED SPEED

rack travel mm : 12.30
 Rated speed rpm : 915
 Tolerance 1/min : ± 5

 rack travel mm : 4.00
 Rated speed rpm : 980
 Tolerance 1/min : ± 10

 rack travel mm : 1.00
 Tolerance mm : ± 0.70
 Rated speed rpm : 1175

 rack travel mm : 4.00
 Rated speed rpm : 990

LOW IDLE

control lever
 position degree : 74.0

 Setting point w/out bumper spring

 Rated speed rpm : 400
 rack travel mm : 4.30

 Testing:

 Rated speed rpm : 400
 rack travel mm : 4.60
 Tolerance mm : ± 0.20

 Rated speed rpm : 100

 CRT mm min. : > 19.00

TORQUE CONTROL

Rated speed rpm : 900
 rack travel mm : 13.30
 Tolerance mm : ± 0.05

 Rated speed rpm : 500
 rack travel mm : 13.30
 Tolerance mm : ± 0.05

 Rated speed rpm : 600
 rack travel mm : 13.30
 Tolerance mm : ± 0.05

ANEROID/ALTITUDE
COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : -
rack travel mm : 12.15
Tolerance mm : ± 0.05

MEASUREMENT

Pressure hPa : 1100
Rated speed rpm : 500
rack travel mm : 13.30
Tolerance mm : ± 0.05

Rated speed rpm : 500

Pressure hPa : 575
rack travel mm : 12.35
Tolerance mm : ± 0.05

Pressure hPa : 725
rack travel mm : 13.05
Tolerance mm : ± 0.10

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1100
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 180.0
cm³/1000 strokes : ± 2.0
Check tolerance
cm³/1000S. : ± 5.0
Spreed
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 9.0

Aneroid pressure
hPa : 1100
Rated speed rpm : 600
Del. quantity
cm³/1000 strokes : 184.0
cm³/1000 strokes : ± 2.0
Check tolerance
cm³/1000S. : ± 5.0

Aneroid pressure
hPa : -
Rated speed rpm : 500

K13

Del. quantity
cm³/1000 strokes : 157.0
cm³/1000 strokes : ± 1.0
Check tolerance
cm³/1000S. : ± 4.0

BREAKAWAY

Rack travel in mm : 12.30
Rated speed rpm : 915
Tolerance 1/min : ± 5

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.00
Tolerance mm : ± 1.00
Del. quantity
cm³/1000 strokes : 135.0
cm³/1000 strokes : ± 5.0
Check tolerance
cm³/1000S. : ± 8.0

LOW IDLE

Rated speed rpm : 400
Del. quantity
cm³/1000 strokes : 12.0
cm³/1000 strokes : ± 2.0
Check tolerance
cm³/1000S. : ± 4.5
Spreed
cm³/1000 strokes : 3.5
Check tolerance
cm³/1000S. : 5.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 28.11.96
Test oil : ISO 4113

Combination No. : 9 400 087 479

Injection pump
Pump designation : PES6P120A720LS7257
 : -10
EP type number : 9 400 087 086

Governor
Governor design. : RQV300...1050PA1029
 : -4
Governor no. : 9 420 080 340

Cust. part No. : 0250742202

Customer-spec. information
Customer : MBB
Motor : OM 447 LA
Power KW : 257.6

TEST BENCH REQUIREMENTS

Inlet line : 4.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 1.5

Test nozzle holde
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 075

Outside diameter : 8.0
x inside diameter : 3.0
x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 4.65
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 21.00

Firing order : 6- 2- 4- 1- 5-
 : 3

Phasing : 0-60-120-180-240
 : -300

BASIC SETTING

Rated speed rpm : 700

Rack travel in mm : 13.70
Tolerance mm : ± 0.10

Del. quantity
cm³/1000 strokes : 247.5
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : ± 4.0

Speed
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

Rated speed rpm : 300

Rack travel in mm : 5.30
Tolerance mm : +- 0.10

Del. quantity
cm3/1000 strokes : 14.0
cm3/1000 strokes : +- 3.0

Check tolerance
cm3/1000S. : +- 6.0

Spreed
cm3/1000 strokes : 8.0
Check tolerance
cm3/1000S. : 12.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1050
guide sleeve
travel mm : 7.80
Tolerance mm : +- 0.10

Rated speed rpm : 700
guide sleeve
travel mm : 5.45
Tolerance mm : +- 0.25

Rated speed rpm : 300
guide sleeve
travel mm : 0.75
Tolerance mm : +- 0.25

Rated speed rpm : 500
guide sleeve
travel mm : 3.55
Tolerance mm : +- 0.25

Rated speed rpm : 1165
guide sleeve
travel mm : 9.45
Tolerance mm : +- 0.25

GUIDE SLEEVE POSITION

Rated speed rpm : 1120

Rack travel in mm : 16.50
Tolerance mm : +- 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 700

Aneroid pressure
hPa : 1100

Del. quantity
cm3/1000 strokes : 247.5
cm3/1000 strokes : +- 1.0

Check tolerance
cm3/1000S. : +- 4.0

Spreed
cm3/1000 strokes : 5.0
Check tolerance
cm3/1000S. : 9.0

CONTROL LEVER

control lever
position degree : 55.0
tolerance degree : +- 4.0

control lever
position degree : 121.0
tolerance degree : +- 4.0

RATED SPEED

rack travel mm : 12.70
Rated speed rpm : 1095
Tolerance 1/min : +- 5

rack travel mm : 4.00
Rated speed rpm : 1170
Tolerance 1/min : +- 15

rack travel mm : 0.50
Tolerance mm : +- 0.50
Rated speed rpm : 1300

LOW IDLE

control lever
position degree : 82.0
tolerance degree : +- 4.0

control lever
position degree : 17.0
tolerance degree : +- 4.0

Testing:

Rated speed rpm : 300
rack travel mm : 5.30
Tolerance mm : +- 0.10

Rated speed rpm : 100

CRT mm min. : > 8.00

Rated speed rpm : 350

TORQUE CONTROL

Rated speed rpm : 700
rack travel mm : 13.70
Tolerance mm : ± 0.10

Rated speed rpm : 1050
rack travel mm : 13.70
Tolerance mm : ± 0.10

ANEROID/ALTITUDE
COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 1100
rack travel mm : 13.70
Tolerance mm : ± 0.10

MEASUREMENT

Pressure hPa : -
Rated speed rpm : 500

Rated speed rpm : 500

Pressure hPa : 720
rack travel mm : 2.65
Tolerance mm : ± 0.15

Pressure hPa : 400
rack travel mm : 0.80
Tolerance mm : ± 0.10

START CUT-OUT

Rated speed rpm : > 100
Rated speed rpm : < 220

Check
speed 1/min : > 80
Check
speed 1/min : < 240

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1100
Rated speed rpm : 1050
Del. quantity
cm³/1000 strokes : 242.0

cm³/1000 strokes : ± 2.0
Check tolerance
cm³/1000S. : ± 5.0
Spreed
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 123.0
cm³/1000 strokes : ± 1.0
Check tolerance
cm³/1000S. : ± 4.0
Spreed
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. : 9.0

BREAKAWAY

Rack travel in mm : 12.70
Rated speed rpm : 1095
Tolerance 1/min : ± 5

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 235.0
cm³/1000 strokes : ± 10.0
Check tolerance
cm³/1000S. : ± 14.0

LOW IDLE

Rated speed rpm : 300
Del. quantity
cm³/1000 strokes : 14.0
cm³/1000 strokes : ± 3.0
Check tolerance
cm³/1000S. : ± 6.0
Spreed
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

End of test specification sheet



BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 14.11.96
Test oil : ISO 4113

Combination No. : 0 400 844 088

Injection pump
Pump designation : PES4A90D410RS2666
EP type number : 0 410 894 029

Governor
Governor design. : RQV300...1400AB1065
: -10L
Governor no. : 0 420 212 203

Cust. part No. :

Customer-spec. information
Customer : MB-NFZ
Motor : OM364
Power KW : 66.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet
temp. °C : 40
Tolerance °C : +- 2.0

Overflow valve : 1 419 992 198

Inlet press. bar : 1.5

Test nozzle holde
assembly : 0 681 343 009

Opening pressure
bar : 173.5
Tolerance bar : +- 1.5

Test lines : 1 680 750 015

Outside diameter : 6.0

x inside diameter : 1.5
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : +- 1.0

Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270
Tolerance : +- 0.50
Check
tolerance °NW : +- 0.75

BASIC SETTING

Rated speed rpm : 1400

Rack travel in mm : 10.95
Tolerance mm : +- 0.05

Del. quantity
cm3/1000 strokes : 64.0

cm3/1000 strokes : +- 0.5

Check tolerance
cm3/1000S. : +- 2.5

Speed
cm3/1000 strokes : 3.0

Check tolerance
cm3/1000S. : 4.5

Rated speed rpm : 300

Rack travel in mm : 8.70
Tolerance mm : +- 0.10

Del. quantity
cm3/1000 strokes : 10.0
cm3/1000 strokes : +- 2.0

Check tolerance
 cm³/1000S. : + 4.0
 Spreed
 cm³/1000 strokes : 2.0
 Check tolerance
 cm³/1000S. : 4.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 300
 guide sleeve
 travel mm : 1.05
 Tolerance mm : + 0.25

Rated speed rpm : 1500
 guide sleeve
 travel mm : 8.55
 Tolerance mm : + 0.05

Rated speed rpm : 500
 guide sleeve
 travel mm : 2.55
 Tolerance mm : + 0.25

Rated speed rpm : 750
 guide sleeve
 travel mm : 4.20
 Tolerance mm : + 0.10

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1400
 Aneroid pressure
 hPa : -
 Del. quantity
 cm³/1000 strokes : 64.0
 cm³/1000 strokes : + 0.5
 Check tolerance
 cm³/1000S. : + 2.5
 Spreed
 cm³/1000 strokes : 3.0
 Check tolerance
 cm³/1000S. : 4.5

CONTROL LEVER

control lever
 position degree : 115.0
 tolerance degree : + 4.0

RATED SPEED

rack travel mm : 9.90
 Rated speed rpm : 1445
 Tolerance 1/min : + 5

rack travel mm : 4.00
 Rated speed rpm : 1560
 Tolerance 1/min : + 15

rack travel mm : 0.50
 Tolerance mm : + 0.50
 Rated speed rpm : 1700

LOW IDLE

control lever
 position degree : 76.0
 tolerance degree : + 4.0

Testing:

Rated speed rpm : 300
 rack travel mm : 8.70
 Tolerance mm : + 0.10

Rated speed rpm : 100

CRT mm min. : > 10.20

Rated speed rpm : 610

TORQUE CONTROL

Dimension a mm : 1.00
 Rated speed rpm : 1400
 rack travel mm : 10.95
 Tolerance mm : + 0.05

Rated speed rpm : 500
 rack travel mm : 12.10
 Tolerance mm : + 0.10

Rated speed rpm : 700
 rack travel mm : 11.85
 Tolerance mm : + 0.15

Rated speed rpm : 900
 rack travel mm : 11.45
 Tolerance mm : + 0.15

START CUT-OUT

Rated speed rpm : > 100
 Rated speed rpm : < 220

Check speed 1/min : > 80
Check speed 1/min : < 240

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 51.5
cm³/1000 strokes : ± 1.5
Check tolerance
cm³/1000S. : ± 4.0
Spreed
Check tolerance
cm³/1000S. : 5.5

Aneroid pressure
hPa : -
Rated speed rpm : 900
Del. quantity
cm³/1000 strokes : 54.0
cm³/1000 strokes : ± 1.5
Check tolerance
cm³/1000S. : ± 4.0

BREAKAWAY

Rack travel in mm : 9.90
Rated speed rpm : 1445
Tolerance 1/min : ± 5

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 16.80
Tolerance mm : ± 0.20
Del. quantity
cm³/1000 strokes : 83.0
cm³/1000 strokes : ± 5.0
Check tolerance
cm³/1000S. : ± 8.0

LOW IDLE

Rated speed rpm : 300
Del. quantity
cm³/1000 strokes : 10.0
cm³/1000 strokes : ± 2.0

K20

Check tolerance
cm³/1000S. : ± 4.0
Spreed
cm³/1000 strokes : 2.0
Check tolerance
cm³/1000S. : 4.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 28.11.96
 Test oil : ISO 4113
 Combination No. : 0 400 844 089
 Injection pump
 Pump designation : PES4A90D410RS2666
 EP type number : 0 410 894 029
 Governor
 Governor design. : RQV300...1400AB1065
 : -10L
 Governor no. : 0 420 212 203
 Cust. part No. :

Customer-spec. information
 Customer : MB-NFZ
 Motor : OM364
 Power KW : 66.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2
 Test oil inlet
 temp. °C : 40
 Tolerance °C : ± 2.0
 Overflow valve : 1 419 992 198
 Inlet press. bar : 1.5
 Test nozzle holde
 assembly : 0 681 343 009
 Opening pressure
 bar : 173.5
 Tolerance bar : ± 1.5
 Test lines : 1 680 750 015
 Outside diameter : 6.0

K21

x inside diameter : 1.5
 x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
 Tolerance bar : ± 1.0
 Firing order : 1- 3- 4- 2
 Phasing : 0-90-180-270
 Tolerance : ± 0.50
 Check
 tolerance *NW : ± 0.75

BASIC SETTING

Rated speed rpm : 1400
 Rack travel in mm : 10.95
 Tolerance mm : ± 0.05
 Del. quantity
 cm³/1000 strokes : 64.0
 cm³/1000 strokes : ± 0.5
 Check tolerance
 cm³/1000S. : ± 2.5
 Spreed
 cm³/1000 strokes : 3.0
 Check tolerance
 cm³/1000S. : 4.5
 Rated speed rpm : 300
 Rack travel in mm : 8.70
 Tolerance mm : ± 0.10
 Del. quantity
 cm³/1000 strokes : 10.0
 cm³/1000 strokes : ± 2.0

Check tolerance
 cm³/1000S. : ± 4.0
 Spreed
 cm³/1000 strokes : 2.0
 Check tolerance
 cm³/1000S. : 4.0

(B) SETTING OF INJECTION PUMP
 WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 300
 guide sleeve
 travel mm : 1.05
 Tolerance mm : ± 0.25

Rated speed rpm : 1500
 guide sleeve
 travel mm : 8.55
 Tolerance mm : ± 0.05

Rated speed rpm : 500
 guide sleeve
 travel mm : 2.55
 Tolerance mm : ± 0.25

Rated speed rpm : 750
 guide sleeve
 travel mm : 4.20
 Tolerance mm : ± 0.10

GUIDE SLEEVE POSITION

Rated speed rpm : 1500
 Rack travel in mm : 16.50
 Tolerance mm : ± 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1400
 Aneroid pressure
 hPa : -
 Del. quantity
 cm³/1000 strokes : 64.0
 cm³/1000 strokes : ± 0.5
 Check tolerance
 cm³/1000S. : ± 2.5
 Spreed
 cm³/1000 strokes : 3.0
 Check tolerance
 cm³/1000S. : 4.5

CONTROL LEVER

control lever
 position degree : 117.0
 tolerance degree : ± 4.0

RATED SPEED

rack travel mm : 9.90
 Rated speed rpm : 1445
 Tolerance 1/min : ± 5

rack travel mm : 4.00
 Rated speed rpm : 1560
 Tolerance 1/min : ± 15

rack travel mm : 0.50
 Tolerance mm : ± 0.50
 Rated speed rpm : 1700

LOW IDLE

control lever
 position degree : 73.0
 tolerance degree : ± 4.0

Testing:

Rated speed rpm : 300
 rack travel mm : 8.70
 Tolerance mm : ± 0.10

Rated speed rpm : 100

CRT mm min. : > 10.20

Rated speed rpm : 610

TORQUE CONTROL

Dimension a mm : 1.00
 Rated speed rpm : 1400
 rack travel mm : 10.95
 Tolerance mm : ± 0.05

Rated speed rpm : 500
 rack travel mm : 11.95
 Tolerance mm : ± 0.05

Rated speed rpm : 700
 rack travel mm : 11.75
 Tolerance mm : ± 0.15

Rated speed rpm : 900

rack travel mm : 11.50
Tolerance mm : ± 0.10

START CUT-OUT

Rated speed rpm : > 100
Rated speed rpm : < 220

Check
speed 1/min : > 80
Check
speed 1/min : < 240

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 51.5
cm³/1000 strokes : ± 1.5
Check tolerance
cm³/1000S. : ± 4.0
Spreed
Check tolerance
cm³/1000S. : 5.5

Aneroid pressure
hPa : -
Rated speed rpm : 900
Del. quantity
cm³/1000 strokes : 54.0
cm³/1000 strokes : ± 1.5
Check tolerance
cm³/1000S. : ± 4.0

BREAKAWAY

Rack travel in mm : 9.90
Rated speed rpm : 1445
Tolerance 1/min : ± 5

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 16.80
Tolerance mm : ± 0.20
Del. quantity
cm³/1000 strokes : 83.0
cm³/1000 strokes : ± 5.0
Check tolerance
cm³/1000S. : ± 8.0

LOW IDLE

Rated speed rpm : 300
Del. quantity
cm³/1000 strokes : 10.0
cm³/1000 strokes : ± 2.0
Check tolerance
cm³/1000S. : ± 4.0
Spreed
cm³/1000 strokes : 2.0
Check tolerance
cm³/1000S. : 4.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 29.11.96
Test oil : ISO 4113
Combination No. : 0 400 844 096
Injection pump
Pump designation : PES4A95D410RS2809
EP type number : 0 410 894 993
Governor
Governor design. : RQV300...1400AB1065
 : -23L
Governor no. : 0 420 212 227
Cust. part No. :

Customer-spec. information
Customer : MB-NFZ
Motor : OM 364
Power KW : 65.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2
Test oil inlet
temp. °C : 40
Tolerance °C : + 2.0
Overflow valve : 1 419 992 198
Inlet press. bar : 1.5
Test nozzle holde
assembly : 0 681 343 009
Opening pressure
bar : 173.5
Tolerance bar : + 1.5
Test lines : 1 680 750 015
Outside diameter : 6.0

K24

x inside diameter : 1.5
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : + 1.0
Firing order : 1- 3- 4- 2
Phasing : 0-90-180-270
Tolerance : + 0.50
Check
tolerance °NW : + 0.75

BASIC SETTING

Rated speed rpm : 1400
Rack travel in mm : 9.95
Tolerance mm : + 0.05
Del. quantity
cm³/1000 strokes : 65.5
cm³/1000 strokes : + 1.0
Check tolerance
cm³/1000S. : + 3.0
Spreed
cm³/1000 strokes : 3.5
Check tolerance
cm³/1000S. : 6.0
Rated speed rpm : 300
Rack travel in mm : 8.60
Tolerance mm : + 0.10
Del. quantity
cm³/1000 strokes : 10.0
cm³/1000 strokes : + 2.0

Check tolerance
 cm³/1000S. : + 4.5
 Spreed
 cm³/1000 strokes : 3.5
 Check tolerance
 cm³/1000S. : 5.5

(B) SETTING OF INJECTION PUMP
 WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 300
 guide sleeve
 travel mm : 1.05
 Tolerance mm : + 0.25

Rated speed rpm : 1500
 guide sleeve
 travel mm : 8.55
 Tolerance mm : + 0.05

Rated speed rpm : 500
 guide sleeve
 travel mm : 2.55
 Tolerance mm : + 0.25

Rated speed rpm : 750
 guide sleeve
 travel mm : 4.20
 Tolerance mm : + 0.10

GUIDE SLEEVE POSITION

Rated speed rpm : 1450
 Rack travel in mm : 16.50
 Tolerance mm : + 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1400
 Aneroid pressure
 hPa : -
 Del. quantity
 cm³/1000 strokes : 65.5
 cm³/1000 strokes : + 1.0
 Check tolerance
 cm³/1000S. : + 3.0
 Spreed
 cm³/1000 strokes : 3.5
 Check tolerance
 cm³/1000S. : 6.0

CONTROL LEVER

control lever
 position degree : 115.0
 tolerance degree : + 4.0

RATED SPEED

rack travel mm : 8.90
 Rated speed rpm : 1455
 Tolerance 1/min : + 5

rack travel mm : 4.00
 Rated speed rpm : 1550
 Tolerance 1/min : + 15

rack travel mm : 0.50
 Tolerance mm : + 0.50
 Rated speed rpm : 1670

LOW IDLE

control lever
 position degree : 77.0
 tolerance degree : + 4.0

Testing:

Rated speed rpm : 300
 rack travel mm : 8.60
 Tolerance mm : + 0.10

Rated speed rpm : 100
 CRT mm min. : > 9.60

Rated speed rpm : 625

TORQUE CONTROL

Rated speed rpm : 1400
 rack travel mm : 9.95
 Tolerance mm : + 0.05

Rated speed rpm : 400
 rack travel mm : 11.15
 Tolerance mm : + 0.05

Rated speed rpm : 630
 rack travel mm : 10.85
 Tolerance mm : + 0.15

Rated speed rpm : 925
 rack travel mm : 10.55

Tolerance mm : ± 0.15

START CUT-OUT

Rated speed rpm : > 100
Rated speed rpm : < 220

Check speed 1/min : > 80
Check speed 1/min : < 240

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure hPa : -
Rated speed rpm : 400
Del. quantity cm³/1000 strokes : 51.0
cm³/1000 strokes : ± 2.0
Check tolerance cm³/1000S. : ± 4.5

Aneroid pressure hPa : -
Rated speed rpm : 630
Del. quantity cm³/1000 strokes : 53.5
cm³/1000 strokes : ± 2.0
Check tolerance cm³/1000S. : ± 4.5

Aneroid pressure hPa : -
Rated speed rpm : 925
Del. quantity cm³/1000 strokes : 59.0
cm³/1000 strokes : ± 2.0
Check tolerance cm³/1000S. : ± 4.5

BREAKAWAY

Rack travel in mm : 8.90
Rated speed rpm : 1455
Tolerance 1/min : ± 5

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 14.60
Tolerance mm : ± 0.20

Del. quantity cm³/1000 strokes : 83.0
cm³/1000 strokes : ± 5.0
Check tolerance cm³/1000S. : ± 8.0

LOW IDLE

Rated speed rpm : 300
Del. quantity cm³/1000 strokes : 10.0
cm³/1000 strokes : ± 2.0
Check tolerance cm³/1000S. : ± 4.5
Spreed cm³/1000 strokes : 3.5
Check tolerance cm³/1000S. : 5.5

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition : 29.11.96
Test oil : ISO 4113
Combination No. : 0 400 846 258
Injection pump
Pump designation : PES6A90D410RS2293Z
EP type number : 0 410 896 037
Governor
Governer design. : RQV300...1425AB740L
Governer no. : 0 420 212 037

Cust. part No. :

Customer-spec. information
Customer : MB-NFZ

TEST BENCH REQUIREMENTS

Test oil inlet
temp. °C : 40
Tolerance °C : +- 2.0
Inlet press. bar : 1.5
Opening pressure
bar : 173.5
Tolerance bar : +- 1.5

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : +- 1.0

K27

Tolerance : +- 0.50
Check
tolerance *NW : +- 0.75

BASIC SETTING

Del. quantity
cm3/1000 strokes : 74.5
cm3/1000 strokes : +- 0.5
Check tolerance
cm3/1000S. : +- 2.5
Spreed
cm3/1000 strokes : 3.0
Check tolerance
cm3/1000S. : 4.5
Rated speed rpm : 300

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1375
Aneroid pressure
hPa : -
Del. quantity
cm3/1000 strokes : 74.5
cm3/1000 strokes : +- 0.5
Check tolerance
cm3/1000S. : +- 2.5
Spreed
cm3/1000 strokes : 3.0
Check tolerance
cm3/1000S. : 4.5

RATED SPEED

rack travel mm : 4.00
rack travel mm : 4.00

LOW IDLE

Testing:
rack travel mm : 2.00

Rated speed rpm : 100

START CUT-OUT

Rated speed rpm : > 100

Check
speed 1/min : > 80

STARTING FUEL DELIVERY

Rated speed rpm : 100

LOW IDLE

Rated speed rpm : 300

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 02.12.96
Test oil : ISO 4113
Combination No. : 0 400 846 443
Injection pump
Pump designation : PES6A90D410RS2596
EP type number : 0 410 896 073
Governor
Governor design. : RQV300...1400AB1066
 : -1DL
Governor no. : 0 420 214 251

Cust. part No. :

Customer-spec. information
Customer : MB-NFZ
Motor : OM352A
Power KW : 126.0

TEST BENCH REQUIREMENTS

Inlet line : 1.2
Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0
Overflow valve : 1 419 992 198
Inlet press. bar : 1.5
Test nozzle holder
assembly : 0 681 343 009
Opening pressure
bar : 173.5
Tolerance bar : ± 1.5
Test lines : 1 680 750 014
Outside diameter : 6.0

L01

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0
Firing order : 1- 5- 3- 6- 2-
 : 4
Phasing : 0-60-120-180-240
 : -300
Tolerance : ± 0.50
Check
tolerance *NW : ± 0.75

BASIC SETTING

Rated speed rpm : 1400
Rack travel in mm : 12.45
Tolerance mm : ± 0.05
Del. quantity
cm³/1000 strokes : 74.5
cm³/1000 strokes : ± 0.5
Check tolerance
cm³/1000s. : ± 2.5
Speed
cm³/1000 strokes : 3.0
Check tolerance
cm³/1000s. : 4.5
Rated speed rpm : 300
Rack travel in mm : 9.00
Tolerance mm : ± 0.10

Del. quantity
 cm³/1000 strokes : 12.0
 cm³/1000 strokes : + 3.0
 Check tolerance
 cm³/1000S. : + 5.0
 Spreed
 cm³/1000 strokes : 2.0
 Check tolerance
 cm³/1000S. : 4.0

(B) SETTING OF INJECTION PUMP
 WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 300
 guide sleeve
 travel mm : 1.05
 Tolerance mm : + 0.25

Rated speed rpm : 1500
 guide sleeve
 travel mm : 8.55
 Tolerance mm : + 0.05

Rated speed rpm : 500
 guide sleeve
 travel mm : 2.55
 Tolerance mm : + 0.25

Rated speed rpm : 750
 guide sleeve
 travel mm : 4.20
 Tolerance mm : + 0.10

GUIDE SLEEVE POSITION

Rated speed rpm : 1500
 Rack travel in mm : 16.50
 Tolerance mm : + 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1400
 Aneroid pressure
 hPa : 700
 Del. quantity
 cm³/1000 strokes : 74.5
 cm³/1000 strokes : + 0.5
 Check tolerance
 cm³/1000S. : + 2.5
 Spreed
 cm³/1000 strokes : 3.0
 Check tolerance
 cm³/1000S. : 4.5

CONTROL LEVER

control lever
 position degree : 114.0
 tolerance degree : + 4.0

RATED SPEED

rack travel mm : 11.40
 Rated speed rpm : 1445
 Tolerance 1/min : + 5

rack travel mm : 4.00
 Rated speed rpm : 1595
 Tolerance 1/min : + 15

rack travel mm : 0.50
 Tolerance mm : + 0.50
 Rated speed rpm : 1750

LOW IDLE

control lever
 position degree : 76.0
 tolerance degree : + 4.0

Testing:

Rated speed rpm : 300
 rack travel mm : 9.00
 Tolerance mm : + 0.10

Rated speed rpm : 100

CRT mm min. : > 10.50

Rated speed rpm : 625

TORQUE CONTROL

Rated speed rpm : 1400
 rack travel mm : 12.45
 Tolerance mm : + 0.05

Rated speed rpm : 700
 rack travel mm : 13.75
 Tolerance mm : + 0.05

Rated speed rpm : 1000
 rack travel mm : 13.40
 Tolerance mm : + 0.10

Rated speed rpm : 1200

rack travel mm : 12.75
Tolerance mm : ± 0.15

ANEROID/ALTITUDE
COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 700
rack travel mm : 13.75
Tolerance mm : ± 0.05

MEASUREMENT

Pressure hPa : -
Rated speed rpm : 500
rack travel mm : 12.35
Tolerance mm : ± 0.05

Rated speed rpm : 500

Pressure hPa : 225
rack travel mm : 12.70
Tolerance mm : ± 0.10

Pressure hPa : 350
rack travel mm : 13.25
Tolerance mm : ± 0.05

START CUT-OUT

Rated speed rpm : > 100
Rated speed rpm : < 220

Check
speed 1/min : > 80
Check
speed 1/min : < 240

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 700
Rated speed rpm : 700
Del. quantity
cm³/1000 strokes : 76.0
cm³/1000 strokes : ± 2.0
Check tolerance
cm³/1000s. : ± 4.5

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 56.0

L03

cm³/1000 strokes : ± 1.0
Check tolerance
cm³/1000s. : ± 3.0

BREAKAWAY

Rack travel in mm : 11.40
Rated speed rpm : 1445
Tolerance 1/min : ± 5

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 15.60
Tolerance mm : ± 0.20
Del. quantity
cm³/1000 strokes : 78.0
cm³/1000 strokes : ± 5.0
Check tolerance
cm³/1000s. : ± 8.0

LOW IDLE

Rated speed rpm : 300
Del. quantity
cm³/1000 strokes : 12.0
cm³/1000 strokes : ± 3.0
Check tolerance
cm³/1000s. : ± 5.0
Speed
cm³/1000 strokes : 2.0
Check tolerance
cm³/1000s. : 4.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 02.12.96
Test oil : ISO 4113
Combination No. : 0 400 846 476
Injection pump
Pump designation : PES6A90D410RS2293
EP type number : 0 410 896 031
Governor
Governor design. : RQV300...1400AB1141L
Governor no. : 0 420 212 148

Cust. part No. :

Customer-spec. information
Customer : MB-NFZ
Motor : OM 352A
Power KW : 123.6

TEST BENCH REQUIREMENTS

Inlet line : 1.2
Test oil inlet temp. °C : 40
Tolerance °C : + 2.0
Overflow valve : 1 419 992 198
Inlet press. bar : 1.5
Test nozzle holder assembly : 0 681 343 009
Opening pressure bar : 173.5
Tolerance bar : + 1.5
Test lines : 1 680 750 014
Outside diameter : 6.0

L04

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : + 1.0
Firing order : 1- 5- 3- 6- 2-
: 4
Phasing : 0-60-120-180-240
: -300
Tolerance : + 0.50
Check tolerance *NW : + 0.75

BASIC SETTING

Del. quantity cm3/1000 strokes : 75.5
cm3/1000 strokes : + 0.5
Check tolerance cm3/1000S. : + 2.5
Speed cm3/1000 strokes : 3.0
Check tolerance cm3/1000S. : 4.5
Rated speed rpm : 300
Rack travel in mm : 7.70
Tolerance mm : + 0.10
Del. quantity cm3/1000 strokes : 12.0
cm3/1000 strokes : + 3.0
Check tolerance cm3/1000S. : + 5.0
Speed cm3/1000 strokes : 2.0

Check tolerance
cm³/1000s. : 4.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE POSITION

Rated speed rpm : 1420
Rack travel in mm : 17.70
Tolerance mm : ± 1.70

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1375
Aneroid pressure
hPa : 700
Del. quantity
cm³/1000 strokes : 75.5
cm³/1000 strokes : ± 0.5
Check tolerance
cm³/1000s. : ± 2.5
Spreed
cm³/1000 strokes : 3.0
Check tolerance
cm³/1000s. : 4.5

CONTROL LEVER

control lever
position degree : 61.0
tolerance degree : ± 4.0

RATED SPEED

rack travel mm : 10.30
Rated speed rpm : 1440
Tolerance 1/min : ± 5

rack travel mm : 4.00
Rated speed rpm : 1565
Tolerance 1/min : ± 15

rack travel mm : 0.50
Tolerance mm : ± 0.50
Rated speed rpm : 1650

LOW IDLE

L05

control lever
position degree : 15.0
tolerance degree : ± 4.0

Testing:

Rated speed rpm : 300
rack travel mm : 7.70
Tolerance mm : ± 0.10

Rated speed rpm : 100

CRT mm min. : > 9.20

Rated speed rpm : 413

ANEROID/ALTITUDE
COMPENSATOR TEST

SETTING

Rated speed rpm : 1375
Pressure hPa : 700
rack travel mm : 11.35
Tolerance mm : ± 0.05

MEASUREMENT

Pressure hPa : -
Rated speed rpm : 1375
rack travel mm : 11.05
Tolerance mm : ± 0.05

Rated speed rpm : 1375

Pressure hPa : 280
rack travel mm : 11.15
Tolerance mm : ± 0.05

START CUT-OUT

Rated speed rpm : > 100
Rated speed rpm : < 220

Check
speed 1/min : > 80

Check
speed 1/min : < 240

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : -
Rated speed rpm : 500

Del. quantity
cm³/1000 strokes : 57.0
cm³/1000 strokes : ± 1.0
Check tolerance
cm³/1000S. : ± 3.0

BREAKAWAY

Rack travel in mm : 10.30
Rated speed rpm : 1440
Tolerance 1/min : ± 5

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 14.50
Tolerance mm : ± 0.20
Del. quantity
cm³/1000 strokes : 76.0
cm³/1000 strokes : ± 5.0
Check tolerance
cm³/1000S. : ± 8.0

LOW IDLE

Rated speed rpm : 300
Del. quantity
cm³/1000 strokes : 12.0
cm³/1000 strokes : ± 3.0
Check tolerance
cm³/1000S. : ± 5.0
Spreed
cm³/1000 strokes : 2.0
Check tolerance
cm³/1000S. : 4.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 02.12.96
Test oil : ISO 4113
Combination No. : 0 400 846 477
Injection pump
Pump designation : PES6A90D410RS2293
EP type number : 0 410 896 031
Governor
Governor design. : RQV300...1400AB1142L
Governor no. : 0 420 212 149

Cust. part No. :

Customer-spec. information
Customer : MB-NFZ
Motor : OM 352A
Power KW : 123.6

TEST BENCH REQUIREMENTS

Inlet line : 1.2
Test oil inlet temp. °C : 40
Tolerance °C : ± 2.0
Overflow valve : 1 419 992 198
Inlet press. bar : 1.5
Test nozzle holder assembly : 0 681 343 009
Opening pressure bar : 173.5
Tolerance bar : ± 1.5
Test lines : 1 680 750 014
Outside diameter : 6.0

L07

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0
Firing order : 1- 5- 3- 6- 2-
: 4
Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.50
Check tolerance *NW : ± 0.75

BASIC SETTING

Del. quantity cm³/1000 strokes : 75.5
cm³/1000 strokes : ± 0.5
Check tolerance cm³/1000s. : ± 2.5
Speed cm³/1000 strokes : 3.0
Check tolerance cm³/1000s. : 4.5
Rated speed rpm : 300
Rack travel in mm : 7.70
Tolerance mm : ± 0.10
Del. quantity cm³/1000 strokes : 12.0
cm³/1000 strokes : ± 3.0
Check tolerance cm³/1000s. : ± 5.0
Speed cm³/1000 strokes : 2.0

Check tolerance
cm³/1000S. : 4.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE POSITION

Rated speed rpm : 1420
Rack travel in mm : 17.70
Tolerance mm : ± 1.70

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1375
Aneroid pressure
hPa : 700
Del. quantity
cm³/1000 strokes : 75.5
cm³/1000 strokes : ± 0.5
Check tolerance
cm³/1000S. : ± 2.5
Spreed
cm³/1000 strokes : 3.0
Check tolerance
cm³/1000S. : 4.5

CONTROL LEVER

control lever
position degree : 61.0
tolerance degree : ± 4.0

RATED SPEED

rack travel mm : 10.30
Rated speed rpm : 1440
Tolerance 1/min : ± 5

rack travel mm : 4.00
Rated speed rpm : 1565
Tolerance 1/min : ± 15

rack travel mm : 0.50
Tolerance mm : ± 0.50
Rated speed rpm : 1650

LOW IDLE

L08

control lever
position degree : 15.0
tolerance degree : ± 4.0

Testing:

Rated speed rpm : 300
rack travel mm : 7.70
Tolerance mm : ± 0.10

Rated speed rpm : 100
CRT mm min. : > 9.20

Rated speed rpm : 413

ANEROID/ALTITUDE
COMPENSATOR TEST

SETTING

Rated speed rpm : 1375
Pressure hPa : 700
rack travel mm : 11.35
Tolerance mm : ± 0.05

MEASUREMENT

Pressure hPa : -
Rated speed rpm : 1375
rack travel mm : 11.05
Tolerance mm : ± 0.05

Rated speed rpm : 1375

Pressure hPa : 280
rack travel mm : 11.15
Tolerance mm : ± 0.05

START CUT-OUT

Rated speed rpm : > 100
Rated speed rpm : < 220

Check
speed 1/min : > 80
Check
speed 1/min : < 240

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : -
Rated speed rpm : 500

Del. quantity
cm³/1000 strokes : 57.0
cm³/1000 strokes : +- 1.0
Check tolerance
cm³/1000S. : +- 3.0

BREAKAWAY

Rack travel in mm : 10.30
Rated speed rpm : 1440
Tolerance 1/min : +- 5

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 14.50
Tolerance mm : +- 0.20
Del. quantity
cm³/1000 strokes : 76.0
cm³/1000 strokes : +- 5.0
Check tolerance
cm³/1000S. : +- 8.0

LOW IDLE

Rated speed rpm : 300
Del. quantity
cm³/1000 strokes : 12.0
cm³/1000 strokes : +- 3.0
Check tolerance
cm³/1000S. : +- 5.0
Spreed
cm³/1000 strokes : 2.0
Check tolerance
cm³/1000S. : 4.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 30.11.96
Test oil : ISO 4113
Combination No. : 0 400 846 584
Injection pump
Pump designation : PES6A95D410RS2797
EP type number : 0 410 896 900
Governor
Governor design. : RQV300...1400AB1065
: -20L
Governor no. : 0 420 212 225

Cust. part No. :

Customer-spec. information
Customer : MB-NFZ
Motor : OM 366
Power KW : 97.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2
Test oil inlet temp. °C : 40
Tolerance °C : ± 2.0
Overflow valve : 1 419 992 198
Inlet press. bar : 1.5
Test nozzle holder assembly : 0 681 343 009
Opening pressure bar : 173.5
Tolerance bar : ± 1.5
Test lines : 1 680 750 015
Outside diameter : 6.0

L10

x inside diameter : 1.5
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0
Firing order : 1- 5- 3- 6- 2-
: 4
Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.50
Check tolerance °NW : ± 0.75

BASIC SETTING

Rated speed rpm : 1400
Rack travel in mm : 9.35
Tolerance mm : ± 0.05
Del. quantity cm³/1000 strokes : 67.0
cm³/1000 strokes : ± 1.0
Check tolerance cm³/1000S. : ± 3.0
Speed cm³/1000 strokes : 3.5
Check tolerance cm³/1000S. : 6.0
Rated speed rpm : 300
Rack travel in mm : 8.10
Tolerance mm : ± 0.10

Del. quantity
 cm³/1000 strokes : 12.0
 cm³/1000 strokes : + 2.0
 Check tolerance
 cm³/1000S. : + 4.5
 Spreed
 cm³/1000 strokes : 3.5
 Check tolerance
 cm³/1000S. : 5.5

(B) SETTING OF INJECTION PUMP
 WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 300
 guide sleeve
 travel mm : 1.05
 Tolerance mm : + 0.25

Rated speed rpm : 1500
 guide sleeve
 travel mm : 8.55
 Tolerance mm : + 0.05

Rated speed rpm : 500
 guide sleeve
 travel mm : 2.55
 Tolerance mm : + 0.25

Rated speed rpm : 750
 guide sleeve
 travel mm : 4.20
 Tolerance mm : + 0.10

GUIDE SLEEVE POSITION

Rated speed rpm : 1450
 Rack travel in mm : 16.50
 Tolerance mm : + 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1400
 Aneroid pressure
 hPa : -
 Del. quantity
 cm³/1000 strokes : 67.0
 cm³/1000 strokes : + 1.0
 Check tolerance
 cm³/1000S. : + 3.0
 Spreed
 cm³/1000 strokes : 3.5
 Check tolerance
 cm³/1000S. : 6.0

CONTROL LEVER

control lever
 position degree : 113.0
 tolerance degree : + 4.0

RATED SPEED

rack travel mm : 8.30
 Rated speed rpm : 1455
 Tolerance 1/min : + 5

rack travel mm : 4.00
 Rated speed rpm : 1535
 Tolerance 1/min : + 15

rack travel mm : 0.50
 Tolerance mm : + 0.50
 Rated speed rpm : 1670

LOW IDLE

control lever
 position degree : 74.0
 tolerance degree : + 4.0

Testing:

Rated speed rpm : 300
 rack travel mm : 8.10
 Tolerance mm : + 0.10

Rated speed rpm : 100

CRT mm min. : > 9.50

Rated speed rpm : 515

TORQUE CONTROL

Rated speed rpm : 1400
 rack travel mm : 9.35
 Tolerance mm : + 0.05

Rated speed rpm : 500
 rack travel mm : 10.45
 Tolerance mm : + 0.15

Rated speed rpm : 900
 rack travel mm : 9.65
 Tolerance mm : + 0.15

START CUT-OUT

Rated speed rpm : > 100
Rated speed rpm : < 220
Check
speed 1/min : > 80
Check
speed 1/min : < 240

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 54.5
cm³/1000 strokes : ± 1.5
Check tolerance
cm³/1000S. : ± 4.0

BREAKAWAY

Rack travel in mm : 8.30
Rated speed rpm : 1455
Tolerance 1/min : ± 5

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 13.90
Tolerance mm : ± 0.20
Del. quantity
cm³/1000 strokes : 83.0
cm³/1000 strokes : ± 5.0
Check tolerance
cm³/1000S. : ± 8.0

LOW IDLE

Rated speed rpm : 300
Del. quantity
cm³/1000 strokes : 12.0
cm³/1000 strokes : ± 2.0
Check tolerance
cm³/1000S. : ± 4.5
Spreed
cm³/1000 strokes : 3.5
Check tolerance
cm³/1000S. : 5.5

L12

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 29.11.96
Test oil : ISO 4113

Combination No. : 0 400 074 876

Injection pump
Pump designation : PES4M60C320RS185
EP type number : 0 410 064 006

Governor
Governor design. : RSF360/1900M84
Governor no. : 0 420 021 287

Cust. part No. :

Customer-spec. information
Customer : MB-PKW
Motor : OM601 D23 LA
Power KW : 72.0

TEST BENCH REQUIREMENTS

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 469 990 351

Inlet press. bar : 1.0

Test nozzle holde
assembly : 1 688 901 111

Opening pressure
bar : 148.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0
x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 2.05
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 21.00
Tolerance mm : ± 1.00

Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270

Start of delivery blocking

*NW after s.o.d. : 17.00
Tolerance : ± 0.20
Check
tolerance *NW : ± 0.30

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 900

Rack travel in mm : 13.80
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 59.5
cm³/1000 strokes : ± 0.7

Check tolerance
cm³/1000S. : ± 1.7

Speed
cm³/1000 strokes : 3.0

Check tolerance
cm³/1000S. : 3.5
Rated speed rpm : 360
Rack travel in mm : 5.90
Tolerance mm : ± 0.10
Del. quantity
cm³/1000 strokes : 6.5
cm³/1000 strokes : ± 0.5
Spreed
cm³/1000 strokes : 1.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

IDLE STAGE

Rack travel in mm : 6.00
Tolerance mm : ± 0.10

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 900
Ref. pressure
ALDA / ADA hPa : 1850
Del. quantity
cm³/1000 strokes : 59.5
cm³/1000 strokes : ± 0.7
Check tolerance
cm³/1000S. : ± 1.7
Spreed
cm³/1000 strokes : 3.0
Check tolerance
cm³/1000S. : 3.5

RATED SPEED

control lever
position degree : 50.0
Rated speed rpm : 2150
rack travel mm : 6.60
Tolerance mm : ± 0.20
Rated speed rpm : 2600
rack travel mm : 0.50
Tolerance mm : ± 0.50

SET IDLE CONTROL LEVER POSITION

Rated speed rpm : 900

CRT mm max. : 1.95

LOW IDLE

control lever
position degree : 12.0
tolerance degree : ± 2.0

Setting point w/out bumper spring

Rated speed rpm : 360
rack travel mm : 5.90

SET IDLE AUXILIARY SPRING

Rated speed rpm : 500
rack travel mm : 4.00
Tolerance mm : ± 0.10

Load pick-up

Rated speed rpm : 200
rack travel mm : 12.20

Rated speed rpm : 900

CRT mm max. : 1.95

rack travel mm : 5.90
Rated speed rpm : 360

TORQUE CONTROL

Rated speed rpm : 900
rack travel mm : 13.80
Tolerance mm : ± 0.05

Rated speed rpm : 1500
rack travel mm : 13.20
Tolerance mm : ± 0.10

Rated speed rpm : 1900
rack travel mm : 12.50
Tolerance mm : ± 0.15

Rated speed rpm : 500
rack travel mm : 15.30
Tolerance mm : ± 0.30

Rated speed rpm : 900
rack travel mm : 11.15
Tolerance mm : ± 0.10

ADJUSTMENT TEST ADA/ALDA

SETTING

Rated speed rpm : 900
Ref. pressure
ALDA / ADA hPa : 1600
rack travel mm : -0.25
Tolerance mm : + 0.20

MEASUREMENT

Rated speed rpm : 900
Ref. pressure
ALDA / ADA hPa : 1100
rack travel mm : -2.65
Tolerance mm : + 0.10

Ref. pressure
ALDA / ADA hPa : 750
rack travel mm : -4.30
Tolerance mm : + 0.20

FUEL DELIVERY CHARACTERISTICS

Ref. pressure
ALDA / ADA hPa : 1850
Rated speed rpm : 1500
Del. quantity
cm³/1000 strokes : 58.0
cm³/1000 strokes : + 1.0
Check tolerance
cm³/1000S. : + 2.0
Spreed
cm³/1000 strokes : 3.0
Check tolerance
cm³/1000S. : 3.5

Ref. pressure
ALDA / ADA hPa : 1850
Rated speed rpm : 1900
Spreed
Del. quantity
cm³/1000 strokes : 55.5
cm³/1000 strokes : + 1.2
Check tolerance
cm³/1000S. : + 2.2
Spreed
cm³/1000 strokes : 3.0
Check tolerance
cm³/1000S. : 3.5

Ref. pressure
ALDA / ADA hPa : 1100
Rated speed rpm : 900
Del. quantity
cm³/1000 strokes : 43.0
cm³/1000 strokes : + 0.7
Check tolerance
cm³/1000S. : + 1.7

Spreed
cm³/1000 strokes : 3.0
Check tolerance
cm³/1000S. : 3.5

Ref. pressure
ALDA / ADA hPa : 1850
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 64.3
cm³/1000 strokes : + 2.0
Check tolerance
cm³/1000S. : + 3.0
cm³/1000 strokes : 3.0
Check tolerance
cm³/1000S. : 3.5

Ref. pressure
ALDA / ADA hPa : 1100
Rated speed rpm : 900
Del. quantity
cm³/1000 strokes : 43.0
cm³/1000 strokes : + 0.7
Check tolerance
cm³/1000S. : + 1.7
Spreed
cm³/1000 strokes : 3.0
Check tolerance
cm³/1000S. : 3.5

HIGH IDLE

Ref. pressure
ALDA / ADA hPa : 1850
Rated speed rpm : 2150
rack travel mm : 6.60
Tolerance mm : + 0.20
Del. quantity
cm³/1000 strokes : 21.4
cm³/1000 strokes : + 2.2
Check tolerance
cm³/1000S. : + 3.2
Spreed
cm³/1000 strokes : 3.0
Check tolerance
cm³/1000S. : 3.5

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : > 20.10
Del. quantity
cm³/1000 strokes : 54.3
cm³/1000 strokes : + 4.0
Check tolerance
cm³/1000S. : + 5.0
Spreed

cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 8.5

LOW IDLE

Rated speed rpm : 360
rack travel mm : 5.90
Tolerance mm : ± 0.10
Del. quantity
cm³/1000 strokes : 7.8
Check tolerance
cm³/1000S. : ± 2.3
Spreed
Check tolerance
cm³/1000S. : 1.5

SETTING PNEUMATIC FAST IDLE (PLA)
(PLA) POSITION

control lever
position degree : 12.0
tolerance degree : ± 2.0

SETTING/TESTING ELECTRONIC IDLE
REGULATION (ELR)

Rated speed rpm : 360

Rack travel in mm : 13.70
Tolerance mm : ± 0.70
Del. quantity
cm³/1000 strokes : 53.8
cm³/1000 strokes : ± 3.5

Current A : 1.80

Rated speed rpm : 2600

Rack travel in mm : 0.50
Tolerance mm : ± 0.50

Current short-
duration A : 3.00

Starting test

Rated speed rpm : 100

Current A : 1.80

TESTING PNEUMATIC SHUTOFF DEVICE

Rated speed rpm : 360
Vacuum hPa : -450.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 29.11.96
Test oil : ISO 4113
Combination No. : 0 400 074 883
Injection pump
Pump designation : PES4M60C320RS185
EP type number : 0 410 064 006
Governor
Governor design. : RSF375/1900M78
Governor no. : 0 420 021 274

Cust. part No. :

Customer-spec. information
Customer : MB-PKW
Motor : OM601 D23 LA
Power KW : 72.0

TEST BENCH REQUIREMENTS

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 469 990 351

Inlet press. bar : 1.0

Test nozzle holder
assembly : 1 688 901 111

Opening pressure
bar : 148.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 2.05
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 21.00
Tolerance mm : ± 1.00

Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270

Start of delivery blocking

*NW after s.o.d. : 17.00
Tolerance : ± 0.20
Check
tolerance *NW : ± 0.30

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 900

Rack travel in mm : 13.80
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 59.5

cm³/1000 strokes : ± 0.7

Check tolerance
cm³/1000S. : ± 1.7

Speed
cm³/1000 strokes : 3.0

Check tolerance
cm³/1000S. : 3.5

Rated speed rpm : 375
Rack travel in mm : 6.00
Tolerance mm : + 0.10
Del. quantity
cm³/1000 strokes : 6.5
cm³/1000 strokes : + 0.5
Spreed
cm³/1000 strokes : 1.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

—————
IDLE STAGE

Rack travel in mm : 6.00
Tolerance mm : + 0.10

—————
FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 900
Ref. pressure
ALDA / ADA hPa : 1850
Del. quantity
cm³/1000 strokes : 59.5
cm³/1000 strokes : + 0.7
Check tolerance
cm³/1000S. : + 1.7
Spreed
cm³/1000 strokes : 3.0
Check tolerance
cm³/1000S. : 3.5

—————
RATED SPEED

control lever
position degree : 50.0
Rated speed rpm : 2200
rack travel mm : 8.30
Tolerance mm : + 0.20
Rated speed rpm : 2600
rack travel mm : 0.50
Tolerance mm : + 0.50

—————
SET IDLE CONTROL LEVER POSITION

Rated speed rpm : 900
CRT mm max. : 1.95

—————
LOW IDLE

control lever
position degree : 12.0
tolerance degree : + 2.0

Setting point w/out bumper spring
Rated speed rpm : 375
rack travel mm : 6.00

SET IDLE AUXILIARY SPRING

Rated speed rpm : 500
rack travel mm : 4.20
Tolerance mm : + 0.10

Load pick-up

Rated speed rpm : 250
rack travel mm : > 9.00

Rated speed rpm : 900

CRT mm max. : 1.95

rack travel mm : 6.00
Rated speed rpm : 375

—————
TORQUE CONTROL

Rated speed rpm : 900
rack travel mm : 13.80
Tolerance mm : + 0.05

Rated speed rpm : 1500
rack travel mm : 13.20
Tolerance mm : + 0.10

Rated speed rpm : 1900
rack travel mm : 12.50
Tolerance mm : + 0.10

Rated speed rpm : 900
rack travel mm : 11.15
Tolerance mm : + 0.10

—————
ADJUSTMENT TEST ADA/ALDA

SETTING

Rated speed rpm : 900
Ref. pressure
ALDA / ADA hPa : 1600
rack travel mm : -0.25

Tolerance mm : ± 0.20

MEASUREMENT

Rated speed rpm : 900
Ref. pressure
ALDA / ADA hPa : 1100
rack travel mm : -2.65
Tolerance mm : ± 0.10

Ref. pressure
ALDA / ADA hPa : 750
rack travel mm : -4.30
Tolerance mm : ± 0.20

FUEL DELIVERY CHARACTERISTICS

Ref. pressure
ALDA / ADA hPa : 1850
Rated speed rpm : 1500
Del. quantity
cm³/1000 strokes : 58.0
cm³/1000 strokes : ± 1.0
Check tolerance
cm³/1000S. : ± 2.0
Spreed
cm³/1000 strokes : 3.0
Check tolerance
cm³/1000S. : 3.5

Ref. pressure
ALDA / ADA hPa : 1850
Rated speed rpm : 1900
Spreed
Del. quantity
cm³/1000 strokes : 55.5
cm³/1000 strokes : ± 1.2
Check tolerance
cm³/1000S. : ± 2.2
Spreed
cm³/1000 strokes : 3.0
Check tolerance
cm³/1000S. : 3.5

Ref. pressure
ALDA / ADA hPa : 1100
Rated speed rpm : 900
Del. quantity
cm³/1000 strokes : 43.0
cm³/1000 strokes : ± 0.7
Check tolerance
cm³/1000S. : ± 1.7
Spreed
cm³/1000 strokes : 3.0
Check tolerance
cm³/1000S. : 3.5

Ref. pressure
ALDA / ADA hPa : 1100
Rated speed rpm : 900
Del. quantity
cm³/1000 strokes : 43.0
cm³/1000 strokes : ± 0.7
Check tolerance
cm³/1000S. : ± 1.7
Spreed
cm³/1000 strokes : 3.0
Check tolerance
cm³/1000S. : 3.5

HIGH IDLE

Ref. pressure
ALDA / ADA hPa : 1850
Rated speed rpm : 2200
rack travel mm : 8.30
Tolerance mm : ± 0.20
Del. quantity
cm³/1000 strokes : 31.0
cm³/1000 strokes : ± 2.2
Check tolerance
cm³/1000S. : ± 3.2
Spreed
cm³/1000 strokes : 3.0
Check tolerance
cm³/1000S. : 3.5

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : > 20.10
Del. quantity
cm³/1000 strokes : 54.3
cm³/1000 strokes : ± 4.0
Check tolerance
cm³/1000S. : ± 5.0
Spreed
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 8.5

LOW IDLE

Rated speed rpm : 375
Del. quantity
cm³/1000 strokes : 7.8
Check tolerance
cm³/1000S. : ± 2.3
Spreed
Check tolerance
cm³/1000S. : 1.5

control lever
position degree : > 42.00

control lever
position degree : < 39.50

SETTING PNEUMATIC FAST IDLE (PLA)
(PLA) POSITION

control lever
position degree : 12.0
tolerance degree : ± 2.0

Rated speed rpm : 425

Rack travel in mm : 8.40
Tolerance mm : ± 0.80

Del. quantity
cm³/1000 strokes : 21.5
cm³/1000 strokes : ± 3.5

Check tolerance
cm³/1000S. : ± 4.5
Vacuum hPa : 450.0

TESTING PNEUMATIC SHUTOFF DEVICE

Rated speed rpm : 375
Vacuum hPa : -450.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 28.11.96
Test oil : ISO 4113

Combination No. : 0 401 848 708

Injection pump
Pump designation : PE8P110A320LS3802
: -10
EP type number : 0 411 818 710

Governor
Governor design. : RQ300/1150PA187-3
Governor no. : 0 421 801 133

Cust. part No. :

Customer-spec. information
Customer : MB-NFZ
Motor : OM422
Power KW : 206.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 1.5

Overflow quantity
min. l/h : 110
Tolerance l/h : ± 10.0

Test nozzle holder
assembly : 0 681 343 009

Opening pressure
bar : 173.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 015

Outside diameter : 6.0

x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 4.05
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 8- 7- 2- 6- 3
: - 5- 4- 1

Phasing : 0-45-90-135-180
: -225-270-315
Tolerance : ± 0.30
Check
tolerance °NW : ± 0.50

Start of delivery mark

Tolerance : ± 0.10
Check
tolerance °NW : ± 0.75

Barrel no. : 8

BASIC SETTING

Rated speed rpm : 750

Rack travel in mm : 11.75
Tolerance mm : ± 0.05

<hr/>	
Del. quantity	
cm ³ /1000 strokes :	114.0
<hr/>	
cm ³ /1000 strokes :	+ 1.0
<hr/>	
Check tolerance	
cm ³ /1000S. :	+ 3.5
<hr/>	
Spreed	
cm ³ /1000 strokes :	4.0
<hr/>	
Check tolerance	
cm ³ /1000S. :	7.0
<hr/>	
Rated speed rpm :	300
<hr/>	
Rack travel in mm :	8.10
Tolerance mm :	+ 0.10
Del. quantity	
cm ³ /1000 strokes :	18.0
cm ³ /1000 strokes :	+ 3.0
Check tolerance	
cm ³ /1000S. :	+ 5.5
Spreed	
cm ³ /1000 strokes :	4.0
Check tolerance	
cm ³ /1000S. :	7.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm :	300
guide sleeve	
travel mm :	2.20
Tolerance mm :	+ 0.10
<hr/>	
Rated speed rpm :	1250
guide sleeve	
travel mm :	9.80
Tolerance mm :	+ 0.50
<hr/>	
Rated speed rpm :	650
guide sleeve	
travel mm :	7.00
Tolerance mm :	+ 0.10
<hr/>	
Rated speed rpm :	1200
guide sleeve	
travel mm :	7.50
Tolerance mm :	+ 0.20

GUIDE SLEEVE POSITION

Rated speed rpm :	650
Rack travel in mm :	13.50
Tolerance mm :	+ 0.50

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm :	750
Aneroid pressure	
hPa :	-
Del. quantity	
cm ³ /1000 strokes :	114.0
cm ³ /1000 strokes :	+ 1.0
Check tolerance	
cm ³ /1000S. :	+ 3.5
Spreed	
cm ³ /1000 strokes :	4.0
Check tolerance	
cm ³ /1000S. :	7.0

CONTROL LEVER

control lever	
position degree :	43.0
tolerance degree :	+ 4.0

RATED SPEED

rack travel mm :	10.70
Rated speed rpm :	1203
Tolerance 1/min :	+ 8
<hr/>	
rack travel mm :	4.00
Rated speed rpm :	1255
Tolerance 1/min :	+ 15
<hr/>	
rack travel mm :	0.75
Tolerance mm :	+ 0.75
Rated speed rpm :	1350

LOW IDLE

control lever	
position degree :	18.0
tolerance degree :	+ 4.0

Testing:

Rated speed rpm :	300
rack travel mm :	8.10
Tolerance mm :	+ 0.10
<hr/>	
rack travel mm :	2.00
Rated speed rpm :	440

Tolerance 1/min : + 20
Rated speed rpm : 100
CRT mm min. : > 10.20
Rated speed rpm : 550
CRT mm max. : < 1.80

TORQUE CONTROL

Rated speed rpm : 750
rack travel mm : 11.75
Tolerance mm : + 0.05

Rated speed rpm : 1150
rack travel mm : 11.75
Tolerance mm : + 0.05

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : -
Rated speed rpm : 1150
Del. quantity
cm³/1000 strokes : 134.0
cm³/1000 strokes : + 2.0
Check tolerance
cm³/1000S. : + 5.0
Speed
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. : 8.0

BREAKAWAY

Rack travel in mm : 10.70
Rated speed rpm : 1203
Tolerance 1/min : + 8

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 140.0
cm³/1000 strokes : + 10.0
Check tolerance
cm³/1000S. : + 14.0

LOW IDLE

Rated speed rpm : 300
Del. quantity
cm³/1000 strokes : 18.0
cm³/1000 strokes : + 3.0
Check tolerance
cm³/1000S. : + 5.5
Speed
cm³/1000 strokes : 4.0
Check tolerance
cm³/1000S. : 7.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 28.11.96
Test oil : ISO 4113

Combination No. : 0 401 848 761

Injection pump
Pump designation : PE8P120A320LS3807
 : -10
EP type number : 0 411 828 713

Governor
Governor design. : RQ300/1150PA546-9
Governor no. : 0 421 801 375

Cust. part No. :

Customer-spec. information
Customer : MB-NFZ
Motor : OM422 LA
Power KW : 276.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 1.5

Overflow quantity
min. l/h : 110
Tolerance l/h : ± 10.0

Test nozzle holder
assembly : 1 688 901 019

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 067
Outside diameter : 6.0
x inside diameter : 3.0
x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 4.05
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 8- 7- 2- 6- 3
 : - 5- 4- 1

Phasing : 0-45-90-135-180
 : -225-270-315
Tolerance : ± 0.30
Check
tolerance °NW : ± 0.50

Start of delivery mark
Tolerance : ± 0.10
Check
tolerance °NW : ± 0.75

Barrel no. : 8

BASIC SETTING

Rated speed rpm : 1150

Rack travel in mm : 11.55
Tolerance mm : ± 0.05

Del. quantity	
cm ³ /1000 strokes	: 176.0
cm ³ /1000 strokes	: ± 1.0
Check tolerance	
cm ³ /1000S.	: ± 4.0
Spreed	
cm ³ /1000 strokes	: 5.0
Check tolerance	
cm ³ /1000S.	: 9.0
Rated speed rpm	: 300
Rack travel in mm	: 5.10
Tolerance mm	: ± 0.10
Del. quantity	
cm ³ /1000 strokes	: 16.0
cm ³ /1000 strokes	: ± 4.0
Check tolerance	
cm ³ /1000S.	: ± 7.0
Spreed	
cm ³ /1000 strokes	: 8.0
Check tolerance	
cm ³ /1000S.	: 12.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm	: 300
guide sleeve	
travel mm	: 1.70
Tolerance mm	: ± 0.10
Rated speed rpm	: 1210
guide sleeve	
travel mm	: 6.65
Tolerance mm	: ± 0.15
Rated speed rpm	: 600
guide sleeve	
travel mm	: 6.00
Tolerance mm	: ± 0.10
Rated speed rpm	: 1150
guide sleeve	
travel mm	: 6.25
Tolerance mm	: ± 0.05
Rated speed rpm	: 1270
guide sleeve	
travel mm	: 8.75

Tolerance mm : ± 0.25

GUIDE SLEEVE POSITION

Rated speed rpm	: 600
Rack travel in mm	: 20.00
Tolerance mm	: ± 0.80

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm	: 1150
Aneroid pressure	
hPa	: 700
Del. quantity	
cm ³ /1000 strokes	: 176.0
cm ³ /1000 strokes	: ± 1.0
Check tolerance	
cm ³ /1000S.	: ± 4.0
Spreed	
cm ³ /1000 strokes	: 5.0
Check tolerance	
cm ³ /1000S.	: 9.0

CONTROL LEVER

control lever	
position degree	: 93.0
tolerance degree	: ± 4.0

RATED SPEED

rack travel mm	: 10.50
Rated speed rpm	: 1203
Tolerance 1/min	: ± 8
rack travel mm	: 4.00
Rated speed rpm	: 1270
Tolerance 1/min	: ± 15
rack travel mm	: 0.75
Tolerance mm	: ± 0.75
Rated speed rpm	: 1400

LOW IDLE

control lever	
position degree	: 73.0
tolerance degree	: ± 4.0

Testing:

Rated speed rpm	: 300
-----------------	-------

rack travel mm : 5.10
Tolerance mm : + 0.10

rack travel mm : 2.00
Rated speed rpm : 390
Tolerance 1/min : + 25

Rated speed rpm : 200

CRT mm min. : > 7.10

TORQUE CONTROL

Dimension a mm : 0.20
Rated speed rpm : 1150
rack travel mm : 11.55
Tolerance mm : + 0.05

Rated speed rpm : 750
rack travel mm : 11.90
Tolerance mm : + 0.10

ANEROID/ALTITUDE
COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : -

MEASUREMENT

Pressure hPa : 410
Rated speed rpm : 500
rack travel mm : 0.35
Tolerance mm : + 0.05

Rated speed rpm : 500

Pressure hPa : 490
rack travel mm : 1.05
Tolerance mm : + 0.15

START CUT-OUT

Rated speed rpm : > 100
Rated speed rpm : < 220

Check
speed 1/min : > 80
Check
speed 1/min : < 240

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 700
Rated speed rpm : 750
Del. quantity
cm³/1000 strokes : 188.5
cm³/1000 strokes : + 1.5
Check tolerance
cm³/1000S. : + 4.5
Spreed
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 138.0
cm³/1000 strokes : + 1.0
Check tolerance
cm³/1000S. : + 4.0
Spreed
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

BREAKAWAY

Rack travel in mm : 10.50
Rated speed rpm : 1203
Tolerance 1/min : + 8

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 150.0
cm³/1000 strokes : + 10.0
Check tolerance
cm³/1000S. : + 14.0

LOW IDLE

Rated speed rpm : 300
Del. quantity
cm³/1000 strokes : 16.0
cm³/1000 strokes : + 4.0
Check tolerance
cm³/1000S. : + 7.0
Spreed
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

End of test specification sheet



BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 29.11.96
Test oil : ISO 4113

Combination No. : 0 401 849 757

Injection pump
Pump designation : PE10P120A520/4LS3863
EP type number : 0 411 897 711

Governor
Governor design. : RQ300/900PA1230
Governor no. : 0 421 801 792

Cust. part No. :

Customer-spec. information
Customer : DAEWOO
Motor : D2840LE

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 1.5
Tolerance bar : + 0.1

Overflow quantity
min. l/h : 100
Tolerance l/h : + 10.0

Test nozzle holde
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : + 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : + 1.0

Prestroke mm : 4.05
Tolerance mm : + 0.05
Check
tolerance mm : + 0.10

Rack travel in mm : 10.50
Tolerance mm : + 1.50

Firing order : 10- 9- 4- 1- 8
: - 7- 6- 3- 5
: - 2

Phasing : 0-45-72-117-144
: -189-216-261-288
: -333
Tolerance : + 0.30
Check
tolerance °NW : + 0.50

Start of delivery mark

Tolerance : + 0.50
Check
tolerance °NW : + 0.75

Barrel no. : 10

BASIC SETTING

Rated speed rpm : 850

Rack travel in mm : 12.90
 Tolerance mm : + 0.05

Del. quantity
 cm³/1000 strokes : 208.0

cm³/1000 strokes : + 1.0

Check tolerance
 cm³/1000s. : + 4.0

Spreed
 cm³/1000 strokes : 6.0

Check tolerance
 cm³/1000s. : 10.0

Rated speed rpm : 300

Rack travel in mm : 7.00
 Tolerance mm : + 0.10
 Del. quantity
 cm³/1000 strokes : 24.0
 cm³/1000 strokes : + 3.0
 Check tolerance
 cm³/1000s. : + 6.0
 Spreed
 cm³/1000 strokes : 7.0
 Check tolerance
 cm³/1000s. : 11.0

(B) SETTING OF INJECTION PUMP
 WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 300
 guide sleeve
 travel mm : 1.44
 Tolerance mm : + 0.10

Rated speed rpm : 932
 guide sleeve
 travel mm : 6.37
 Tolerance mm : + 0.10

Rated speed rpm : 880
 guide sleeve
 travel mm : 6.00
 Tolerance mm : + 0.10

Rated speed rpm : 433
 guide sleeve
 travel mm : 4.94
 Tolerance mm : + 0.10

Rated speed rpm : 510
 guide sleeve
 travel mm : 6.00
 Tolerance mm : + 0.10

Rated speed rpm : 1050
 guide sleeve
 travel mm : 11.50
 Tolerance mm : + 0.50

GUIDE SLEEVE POSITION

Rated speed rpm : 600
 Rack travel in mm : 20.00
 Tolerance mm : + 0.80

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 850
 Aneroid pressure
 hPa : -
 Del. quantity
 cm³/1000 strokes : 208.0
 cm³/1000 strokes : + 1.0
 Check tolerance
 cm³/1000s. : + 4.0
 Spreed
 cm³/1000 strokes : 6.0
 Check tolerance
 cm³/1000s. : 10.0

CONTROL LEVER

control lever
 position degree : 32.0
 tolerance degree : + 4.0

control lever
 position degree : 94.0
 tolerance degree : + 4.0

RATED SPEED

rack travel mm : 11.90
 Rated speed rpm : 900
 Tolerance 1/min : + 5

rack travel mm : 6.00
 Rated speed rpm : 950
 Tolerance 1/min : + 15

rack travel mm : 0.50
 Tolerance mm : + 0.50
 Rated speed rpm : 1100

LOW IDLE

control lever
position degree : 74.0
tolerance degree : + 4.0

control lever
position degree : 12.0
tolerance degree : + 4.0

Testing:

Rated speed rpm : 300
rack travel mm : 7.00
Tolerance mm : + 0.10

rack travel mm : 2.00
Rated speed rpm : 415
Tolerance 1/min : + 20

Rated speed rpm : 200

CRT mm min. : > 9.40

TORQUE CONTROL

Rated speed rpm : 850
rack travel mm : 12.90
Tolerance mm : + 0.05

Rated speed rpm : 650
rack travel mm : 12.90
Tolerance mm : + 0.10

START CUT-OUT

Rated speed rpm : > 100
Rated speed rpm : < 220

Check
speed 1/min : > 80

Check
speed 1/min : < 240

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : -
Rated speed rpm : 650
Del. quantity
cm³/1000 strokes : 212.0
cm³/1000 strokes : + 3.0

MO2

Check tolerance
cm³/1000S. : + 6.0

BREAKAWAY

Rack travel in mm : 11.90
Rated speed rpm : 900
Tolerance 1/min : + 5

STARTING FUEL DELIVERY

Del. quantity
cm³/1000 strokes : 200.0
cm³/1000 strokes : + 20.0
Check tolerance
cm³/1000S. : + 24.0

LOW IDLE

Rated speed rpm : 300
Del. quantity
cm³/1000 strokes : 24.0
cm³/1000 strokes : + 3.0
Check tolerance
cm³/1000S. : + 6.0
Speed
cm³/1000 strokes : 7.0
Check tolerance
cm³/1000S. : 11.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition : 02.12.96
Test oil : ISO 4113

Combination No. : 0 402 646 626

Injection pump
Pump designation : PE6P120A320RS7299
EP type number : 0 412 626 885

Governor
Governor design. : RQV275...1000PA1076K
Governor no. : 0 421 815 357

Cust. part No. : 1280160

Customer-spec. information

Customer : DAF
Motor : WS 268 M
Power KW : 268.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 1.5
Tolerance bar : ± 0.1

Overflow quantity min. l/h : 160
Tolerance l/h : ± 20.0

Test nozzle holder assembly : 1 688 901 105

Opening pressure bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant. per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 4.85
Tolerance mm : ± 0.05
Check tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.30
Check tolerance °NW : ± 0.75

Start of delivery mark

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 980

Rack travel in mm : 13.55
Tolerance mm : ± 0.05

Del. quantity cm³/1000 strokes : 250.0

cm ³ /1000 strokes	: +- 1.0
<hr/>	
Check tolerance cm ³ /1000S.	: +- 4.0
<hr/>	
Speed cm ³ /1000 strokes	: 5.0
<hr/>	
Check tolerance cm ³ /1000S.	: 9.0
Rated speed rpm	: 275
<hr/>	
Rack travel in mm	: 4.80
Tolerance mm	: +- 0.10
Del. quantity cm ³ /1000 strokes	: 17.0
cm ³ /1000 strokes	: +- 3.0
Check tolerance cm ³ /1000S.	: +- 6.0
Speed cm ³ /1000 strokes	: 8.0
Check tolerance cm ³ /1000S.	: 12.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm	: 275
guide sleeve travel mm	: 2.14
Tolerance mm	: +- 0.15
<hr/>	
Rated speed rpm	: 1045
guide sleeve travel mm	: 9.82
Tolerance mm	: +- 0.20
<hr/>	
Rated speed rpm	: 689
guide sleeve travel mm	: 6.43
Tolerance mm	: +- 0.25
<hr/>	
Rated speed rpm	: 284
guide sleeve travel mm	: 2.27
Tolerance mm	: +- 0.25
<hr/>	
Rated speed rpm	: 334
guide sleeve travel mm	: 3.17
Tolerance mm	: +- 0.25
<hr/>	
Rated speed rpm	: 390

guide sleeve travel mm	: 3.79
Tolerance mm	: +- 0.25
<hr/>	
Rated speed rpm	: 1310
guide sleeve travel mm	: 13.50
Tolerance mm	: +- 0.50

GUIDE SLEEVE POSITION

Rated speed rpm	: 1130
<hr/>	
Rack travel in mm	: 12.60
Tolerance mm	: +- 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm	: 980
Aneroid pressure hPa	: -
Del. quantity cm ³ /1000 strokes	: 250.0
cm ³ /1000 strokes	: +- 1.0
Check tolerance cm ³ /1000S.	: +- 4.0
Speed cm ³ /1000 strokes	: 5.0
Check tolerance cm ³ /1000S.	: 9.0

CONTROL LEVER

control lever position degree	: 120.0
tolerance degree	: +- 4.0

RATED SPEED

rack travel mm	: 12.55
Rated speed rpm	: 1042
Tolerance 1/min	: +- 5
<hr/>	
rack travel mm	: 4.00
Rated speed rpm	: 1160
Tolerance 1/min	: +- 15
<hr/>	
rack travel mm	: 0.70
Tolerance mm	: +- 0.70
Rated speed rpm	: 1275

LOW IDLE

control lever
position degree : 76.0
tolerance degree : ± 4.0

Testing:

Rated speed rpm : 275
rack travel mm : 4.80
Tolerance mm : ± 0.10

rack travel mm : 2.00
Rated speed rpm : 370
Tolerance 1/min : ± 20

Rated speed rpm : 175

CRT mm min. : > 7.50

TORQUE CONTROL

Rated speed rpm : 980
rack travel mm : 13.55
Tolerance mm : ± 0.05

Rated speed rpm : 750
rack travel mm : 13.25
Tolerance mm : ± 0.05

Rated speed rpm : 600
rack travel mm : 12.50
Tolerance mm : ± 0.10

Rated speed rpm : 500
rack travel mm : 12.00
Tolerance mm : ± 0.10

ANEROID/ALTITUDE
COMPENSATOR TEST

SETTING

Rated speed rpm : 980
Pressure hPa : 1500
rack travel mm : 13.55
Tolerance mm : ± 0.05

MEASUREMENT

Pressure hPa : -
Rated speed rpm : 980
rack travel mm : 8.60
Tolerance mm : ± 0.10

Rated speed rpm : 980

Pressure hPa : 720

M05

rack travel mm : 12.25
Tolerance mm : ± 0.05

Pressure hPa : 360
rack travel mm : 9.80
Tolerance mm : ± 0.10

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : -
Rated speed rpm : 750
Del. quantity
cm³/1000 strokes : 268.0
cm³/1000 strokes : ± 2.0
Check tolerance
cm³/1000S. : ± 5.0
Speed
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

Aneroid pressure
hPa : -
Rated speed rpm : 600
Del. quantity
cm³/1000 strokes : 154.0
cm³/1000 strokes : ± 1.0
Check tolerance
cm³/1000S. : ± 4.0

BREAKAWAY

Rack travel in mm : 12.55
Rated speed rpm : 1042
Tolerance 1/min : ± 5

LOW IDLE

Rated speed rpm : 275
Del. quantity
cm³/1000 strokes : 17.0
cm³/1000 strokes : ± 3.0
Check tolerance
cm³/1000S. : ± 6.0
Speed
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

End of test specification sheet



BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 03.12.96
Test oil : ISO 4113

Combination No. : 0 402 646 671

Injection pump
Pump designation : PE6P120A320RS7421
EP type number : 0 412 626 956

Governor
Governor design. : RQV275...1150PA1297K
Governor no. : 0 421 815 524

Cust. part No. : 1316184/1

Customer-spec. information
Customer : DAF
Motor : PF 205 M
Power KW : 205.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 000

Inlet press. bar : 1.5
Tolerance bar : ± 0.1

Overflow quantity
min. l/h : 160
Tolerance l/h : ± 20.0

Test nozzle holder
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

M07

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 4.85
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.30
Check
tolerance °NW : ± 0.50

Start of delivery mark

Tolerance : ± 0.10
Check
tolerance °NW : ± 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1130

Rack travel in mm : 12.10
Tolerance mm : ± 0.05

<hr/>	
Del. quantity	
cm ³ /1000 strokes	: 207.0
<hr/>	
cm ³ /1000 strokes	: ± 1.0
<hr/>	
Check tolerance	
cm ³ /1000S.	: ± 4.0
<hr/>	
Speed	
cm ³ /1000 strokes	: 5.0
<hr/>	
Check tolerance	
cm ³ /1000S.	: 9.0
<hr/>	
Rated speed rpm	: 275
<hr/>	
Rack travel in mm	: 4.90
Tolerance mm	: ± 0.10
Del. quantity	
cm ³ /1000 strokes	: 16.0
cm ³ /1000 strokes	: ± 3.0
Check tolerance	
cm ³ /1000S.	: ± 6.0
Speed	
cm ³ /1000 strokes	: 8.0
Check tolerance	
cm ³ /1000S.	: 12.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm	: 275
guide sleeve	
travel mm	: 1.71
Tolerance mm	: ± 0.20
<hr/>	
Rated speed rpm	: 1206
guide sleeve	
travel mm	: 10.12
Tolerance mm	: ± 0.15
<hr/>	
Rated speed rpm	: 813
guide sleeve	
travel mm	: 6.81
Tolerance mm	: ± 0.25
<hr/>	
Rated speed rpm	: 450
guide sleeve	
travel mm	: 3.85
Tolerance mm	: ± 0.25
<hr/>	
Rated speed rpm	: 1480
guide sleeve	
travel mm	: 13.50

M08

Tolerance mm : ± 0.50

GUIDE SLEEVE POSITION

Rated speed rpm	: 1329
Rack travel in mm	: 11.10
Tolerance mm	: ± 2.70

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm	: 1130
Aneroid pressure	
hPa	: 1500
Del. quantity	
cm ³ /1000 strokes	: 207.0
cm ³ /1000 strokes	: ± 1.0
Check tolerance	
cm ³ /1000S.	: ± 4.0
Speed	
cm ³ /1000 strokes	: 5.0
Check tolerance	
cm ³ /1000S.	: 9.0

CONTROL LEVER

control lever	
position degree	: 118.0
tolerance degree	: ± 4.0

RATED SPEED

rack travel mm	: 11.10
Rated speed rpm	: 1195
Tolerance 1/min	: ± 5
<hr/>	
rack travel mm	: 4.00
Rated speed rpm	: 1300
Tolerance 1/min	: ± 15
<hr/>	
rack travel mm	: 0.70
Tolerance mm	: ± 0.70
Rated speed rpm	: 1400

LOW IDLE

control lever	
position degree	: 71.0
tolerance degree	: ± 4.0

Testing:

Rated speed rpm	: 275
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rack travel mm : 4.90
Tolerance mm : ± 0.10
Rated speed rpm : 175
CRT mm min. : > 7.50
Rated speed rpm : 350

TORQUE CONTROL

Rated speed rpm : 1130
rack travel mm : 12.10
Tolerance mm : ± 0.05
Rated speed rpm : 1000
rack travel mm : 12.15
Tolerance mm : ± 0.10
Rated speed rpm : 850
rack travel mm : 12.35
Tolerance mm : ± 0.10
Rated speed rpm : 800
rack travel mm : 12.25
Tolerance mm : ± 0.10
Rated speed rpm : 650
rack travel mm : 11.50
Tolerance mm : ± 0.10
Rated speed rpm : 500
rack travel mm : 10.85
Tolerance mm : ± 0.10
Rated speed rpm : 1150
rack travel mm : 12.10
Tolerance mm : ± 0.10

ANEROID/ALTITUDE
COMPENSATOR TEST

SETTING

Rated speed rpm : 875
Pressure hPa : 1500
rack travel mm : 12.35
Tolerance mm : ± 0.10

MEASUREMENT

Pressure hPa : -
Rated speed rpm : 875
rack travel mm : 8.00
Tolerance mm : ± 0.10
Rated speed rpm : 875

M09

Pressure hPa : 420
rack travel mm : 11.35
Tolerance mm : ± 0.05

Pressure hPa : 150
rack travel mm : 9.20
Tolerance mm : ± 0.10

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1500
Rated speed rpm : 850
Del. quantity
cm³/1000 strokes : 231.0
cm³/1000 strokes : ± 2.0
Check tolerance
cm³/1000s. : ± 5.0
Spreed
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000s. : 12.0

Aneroid pressure
hPa : -
Rated speed rpm : 600
Del. quantity
cm³/1000 strokes : 138.0
cm³/1000 strokes : ± 1.0
Check tolerance
cm³/1000s. : ± 4.0
Spreed
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000s. : 12.0

BREAKAWAY

Rack travel in mm : 11.10
Rated speed rpm : 1195
Tolerance 1/min : ± 5

LOW IDLE

Rated speed rpm : 275
Del. quantity
cm³/1000 strokes : 16.0
cm³/1000 strokes : ± 3.0

Check tolerance
cm³/1000S. : ± 6.0
Speed
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 03.12.96
Test oil : ISO 4113

Combination No. : 0 402 646 672

Injection pump
Pump designation : PE6P120A320RS7421
EP type number : 0 412 626 956

Governor
Governor design. : RQV275...1150PA1298K
Governor no. : 0 421 815 525

Cust. part No. : 1316185/1

Customer-spec. information
Customer : DAF
Motor : PF 183 M
Power KW : 183.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 000

Inlet press. bar : 1.5
Tolerance bar : ± 0.1

Overflow quantity
min. l/h : 150
Tolerance l/h : ± 20.0

Test nozzle holde
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test Lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 4.85
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.30
Check
tolerance °NW : ± 0.50

Start of delivery mark

Tolerance : ± 0.10
Check
tolerance °NW : ± 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1130

Rack travel in mm : 10.80
Tolerance mm : ± 0.10

<hr/>	
Del. quantity	
cm ³ /1000 strokes :	184.0
<hr/>	
cm ³ /1000 strokes :	+ 1.0
<hr/>	
Check tolerance	
cm ³ /1000S. :	+ 4.0
<hr/>	
Spreed	
cm ³ /1000 strokes :	5.0
<hr/>	
Check tolerance	
cm ³ /1000S. :	9.0
<hr/>	
Rated speed rpm :	275
<hr/>	
Rack travel in mm :	4.90
Tolerance mm :	+ 0.10
Del. quantity	
cm ³ /1000 strokes :	16.0
cm ³ /1000 strokes :	+ 3.0
Check tolerance	
cm ³ /1000S. :	+ 6.0
Spreed	
cm ³ /1000 strokes :	8.0
Check tolerance	
cm ³ /1000S. :	12.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm :	275
guide sleeve	
travel mm :	1.71
Tolerance mm :	+ 0.20
<hr/>	
Rated speed rpm :	1200
guide sleeve	
travel mm :	10.06
Tolerance mm :	+ 0.15
<hr/>	
Rated speed rpm :	811
guide sleeve	
travel mm :	6.79
Tolerance mm :	+ 0.25
<hr/>	
Rated speed rpm :	450
guide sleeve	
travel mm :	3.85
Tolerance mm :	+ 0.25
<hr/>	
Rated speed rpm :	1480
guide sleeve	
travel mm :	13.50

M12

Tolerance mm :	+ 0.50
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GUIDE SLEEVE POSITION

Rated speed rpm :	1343
Rack travel in mm :	9.80
Tolerance mm :	+ 2.70

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm :	1130
Aneroid pressure	
hPa :	1500
Del. quantity	
cm ³ /1000 strokes :	184.0
cm ³ /1000 strokes :	+ 1.0
Check tolerance	
cm ³ /1000S. :	+ 4.0
Spreed	
cm ³ /1000 strokes :	5.0
Check tolerance	
cm ³ /1000S. :	9.0

CONTROL LEVER

control lever	
position degree :	117.0
tolerance degree :	+ 4.0

RATED SPEED

rack travel mm :	9.80
Rated speed rpm :	1190
Tolerance 1/min :	+ 5
<hr/>	
rack travel mm :	4.00
Rated speed rpm :	1285
Tolerance 1/min :	+ 15
<hr/>	
rack travel mm :	0.70
Tolerance mm :	+ 0.70
Rated speed rpm :	1450

LOW IDLE

control lever	
position degree :	72.0
tolerance degree :	+ 4.0

Testing:

Rated speed rpm :	275
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rack travel mm : 4.90
Tolerance mm : + 0.10
Rated speed rpm : 175
CRT mm min. : > 7.50
Rated speed rpm : 325

TORQUE CONTROL

Rated speed rpm : 1130
rack travel mm : 10.80
Tolerance mm : + 0.10
Rated speed rpm : 1000
rack travel mm : 10.90
Tolerance mm : + 0.10
Rated speed rpm : 850
rack travel mm : 11.05
Tolerance mm : + 0.05
Rated speed rpm : 800
rack travel mm : 10.90
Tolerance mm : + 0.10
Rated speed rpm : 650
rack travel mm : 10.10
Tolerance mm : + 0.10
Rated speed rpm : 500
rack travel mm : 9.35
Tolerance mm : + 0.10
Rated speed rpm : 1150
rack travel mm : 10.80
Tolerance mm : + 0.10

ANEROID/ALTITUDE
COMPENSATOR TEST

SETTING

Rated speed rpm : 875
Pressure hPa : 1500
rack travel mm : 11.10
Tolerance mm : + 0.10

MEASUREMENT

Pressure hPa : -
Rated speed rpm : 875
rack travel mm : 8.00
Tolerance mm : + 0.10
Rated speed rpm : 875

Pressure hPa : 350
rack travel mm : 10.20
Tolerance mm : + 0.05

Pressure hPa : 130
rack travel mm : 8.40
Tolerance mm : + 0.10

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1500
Rated speed rpm : 850
Del. quantity
cm³/1000 strokes : 206.0
cm³/1000 strokes : + 2.0
Check tolerance
cm³/1000S. : + 5.0
Spreed
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

Aneroid pressure
hPa : -
Rated speed rpm : 600
Del. quantity
cm³/1000 strokes : 138.0
cm³/1000 strokes : + 1.0
Check tolerance
cm³/1000S. : + 4.0
Spreed
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

BREAKAWAY

Rack travel in mm : 9.80
Rated speed rpm : 1190
Tolerance 1/min : + 5

LOW IDLE

Rated speed rpm : 275
Del. quantity
cm³/1000 strokes : 16.0
cm³/1000 strokes : + 3.0

Check tolerance
cm³/1000S. : ± 6.0
Spreed
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 04.12.96
Test oil : ISO 4113

Combination No. : 0 402 648 780

Injection pump
Pump designation : PE8P120A320LS7871
EP type number : 0 412 628 877

Governor
Governor design. : RQV300...1050PA1078
: -2K
Governor no. : 0 421 815 548

Cust. part No. : 988 04 47

Customer-spec. information
Customer : LIEBHERR
Motor : D 9408 TI-EA3
Power KW : 420.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 2.0
Tolerance bar : + 0.1

Test nozzle holde
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : + 1.5

Test lines : 1 680 750 075

Outside diameter : 8.0
x inside diameter : 3.0
x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : + 1.0

Prestroke mm : 3.65
Tolerance mm : + 0.05
Check
tolerance mm : + 0.10

Rack travel in mm : 10.50
Tolerance mm : + 1.50

Firing order : 1- 8- 7- 2- 6
: - 3- 5- 4

Phasing : 0-45-90-135-180
: -225-270-315
Tolerance : + 0.30
Check
tolerance *NW : + 0.50

BASIC SETTING

Rated speed rpm : 1050

Rack travel in mm : 12.65
Tolerance mm : + 0.05

Del. quantity
cm3/1000 strokes : 295.0

cm3/1000 strokes : + 1.0

Check tolerance
cm3/1000S. : + 4.0

Speed
cm3/1000 strokes : 5.0

Check tolerance
cm³/1000s. : 9.0

Rated speed rpm : 350

Rack travel in mm : 4.55
Tolerance mm : +- 0.10
Del. quantity
cm³/1000 strokes : 15.0
cm³/1000 strokes : +- 3.0
Check tolerance
cm³/1000s. : +- 6.0
Spreed
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000s. : 10.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 300
guide sleeve
travel mm : 1.11
Tolerance mm : +- 0.20

Rated speed rpm : 1117
guide sleeve
travel mm : 10.27
Tolerance mm : +- 0.15

Rated speed rpm : 755
guide sleeve
travel mm : 6.17
Tolerance mm : +- 0.25

Rated speed rpm : 480
guide sleeve
travel mm : 3.75
Tolerance mm : +- 0.25

Rated speed rpm : 1330
guide sleeve
travel mm : 13.50
Tolerance mm : +- 0.50

GUIDE SLEEVE POSITION

Rated speed rpm : 1182

Rack travel in mm : 12.48
Tolerance mm : +- 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1050
Aneroid pressure
hPa : 1600
Del. quantity
cm³/1000 strokes : 295.0
cm³/1000 strokes : +- 1.0
Check tolerance
cm³/1000s. : +- 4.0
Spreed
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000s. : 9.0

CONTROL LEVER

control lever
position degree : 119.0
tolerance degree : +- 4.0

RATED SPEED

rack travel mm : 11.65
Rated speed rpm : 1120
Tolerance 1/min : +- 5

rack travel mm : 4.00
Rated speed rpm : 1190
Tolerance 1/min : +- 15

rack travel mm : 0.50
Tolerance mm : +- 0.50
Rated speed rpm : 1255

LOW IDLE

control lever
position degree : 71.0
tolerance degree : +- 4.0

Testing:

Rated speed rpm : 350
rack travel mm : 4.55
Tolerance mm : +- 0.10

Rated speed rpm : 300

CRT mm min. : > 7.10

Rated speed rpm : 450

TORQUE CONTROL

Rated speed rpm : 1050
rack travel mm : 12.65
Tolerance mm : ± 0.05

Rated speed rpm : 500
rack travel mm : 10.05
Tolerance mm : ± 0.10

Rated speed rpm : 800
rack travel mm : 11.75
Tolerance mm : ± 0.10

Rated speed rpm : 950
rack travel mm : 12.20
Tolerance mm : ± 0.10

Rated speed rpm : 600
rack travel mm : 10.75
Tolerance mm : ± 0.10

ANEROID/ALTITUDE
COMPENSATOR TEST

SETTING

Rated speed rpm : 1050
Pressure hPa : 1600
rack travel mm : 12.65
Tolerance mm : ± 0.05

MEASUREMENT

Pressure hPa : -
Rated speed rpm : 1050
rack travel mm : 8.35
Tolerance mm : ± 0.10

Rated speed rpm : 1050

Pressure hPa : 1050
rack travel mm : 11.80
Tolerance mm : ± 0.05

Pressure hPa : 700
rack travel mm : 9.40
Tolerance mm : ± 0.10

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1600

M17

Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 276.0
cm³/1000 strokes : ± 3.0
Check tolerance
cm³/1000S. : ± 6.0

Aneroid pressure
hPa : 1600
Rated speed rpm : 800
Del. quantity
cm³/1000 strokes : 299.0
cm³/1000 strokes : ± 3.0
Check tolerance
cm³/1000S. : ± 6.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 209.0
cm³/1000 strokes : ± 1.0
Check tolerance
cm³/1000S. : ± 4.0
Spread
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

BREAKAWAY

Rack travel in mm : 11.65
Rated speed rpm : 1120
Tolerance 1/min : ± 5

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 9.50
Tolerance mm : ± 0.20
Del. quantity
cm³/1000 strokes : 150.0
cm³/1000 strokes : ± 10.0
Check tolerance
cm³/1000S. : ± 14.0

LOW IDLE

Rated speed rpm : 350
Del. quantity
cm³/1000 strokes : 15.0
cm³/1000 strokes : ± 3.0

Check tolerance
cm³/1000S. : ± 6.0
Spreed
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 10.0

End of test specification sheet



BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 04.12.96
Test oil : ISO 4113
Combination No. : 0 402 648 780A
Injection pump
Pump designation : PE8P120A320LS7871
EP type number : 0 412 628 877
Governor
Governor design. : RQV300...1050PA1078
: -2K
Governor no. : 0 421 815 548
Cust. part No. : 988 04 47

Customer-spec. information
Customer : LIEBHERR
Motor : D 9408 TI-EA3
Power KW : 420.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1
Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0
Overflow valve : 1 417 413 047
Inlet press. bar : 2.0
Tolerance bar : ± 0.1
Test nozzle holder
assembly : 1 688 901 105
Opening pressure
bar : 208.5
Tolerance bar : ± 1.5
Test lines : 1 680 750 075

Outside diameter : 8.0
x inside diameter : 3.0
x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0
Prestroke mm : 3.65
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10
Rack travel in mm : 10.50
Tolerance mm : ± 1.50
Firing order : 1- 8- 7- 2- 6
: - 3- 5- 4
Phasing : 0-45-90-135-180
: -225-270-315
Tolerance : ± 0.30
Check
tolerance °NW : ± 0.50

BASIC SETTING

Rated speed rpm : 1050
Rack travel in mm : 12.65
Tolerance mm : ± 0.05
Del. quantity
cm³/1000 strokes : 295.0
cm³/1000 strokes : ± 1.0
Check tolerance
cm³/1000S. : ± 4.0
Speed
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

Rated speed rpm : 350

Rack travel in mm : 4.55

Tolerance mm : ± 0.10

Del. quantity
cm³/1000 strokes : 15.0

cm³/1000 strokes : ± 3.0

Check tolerance
cm³/1000S. : ± 6.0

Spread
cm³/1000 strokes : 6.0

Check tolerance
cm³/1000S. : 10.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 300

guide sleeve
travel mm : 1.11

Tolerance mm : ± 0.20

Rated speed rpm : 1117

guide sleeve
travel mm : 10.27

Tolerance mm : ± 0.15

Rated speed rpm : 755

guide sleeve
travel mm : 6.17

Tolerance mm : ± 0.25

Rated speed rpm : 480

guide sleeve
travel mm : 3.75

Tolerance mm : ± 0.25

Rated speed rpm : 1330

guide sleeve
travel mm : 13.50

Tolerance mm : ± 0.50

GUIDE SLEEVE POSITION

Rated speed rpm : 1182

Rack travel in mm : 12.48

Tolerance mm : ± 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1050

Aneroid pressure
hPa : 1600

Del. quantity
cm³/1000 strokes : 295.0

cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : ± 4.0

Spread
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

CONTROL LEVER

control lever
position degree : 119.0

tolerance degree : ± 4.0

RATED SPEED

rack travel mm : 11.65

Rated speed rpm : 1120

Tolerance 1/min : ± 5

rack travel mm : 4.00

Rated speed rpm : 1190

Tolerance 1/min : ± 15

rack travel mm : 0.50

Tolerance mm : ± 0.50

Rated speed rpm : 1255

LOW IDLE

control lever
position degree : 71.0

tolerance degree : ± 4.0

Testing:

Rated speed rpm : 350

rack travel mm : 4.55

Tolerance mm : ± 0.10

Rated speed rpm : 300

CRT mm min. : > 7.10

Rated speed rpm : 450

TORQUE CONTROL

Rated speed rpm : 1050
rack travel mm : 12.65
Tolerance mm : + 0.05

Rated speed rpm : 500
rack travel mm : 10.05
Tolerance mm : + 0.10

Rated speed rpm : 800
rack travel mm : 11.75
Tolerance mm : + 0.10

Rated speed rpm : 950
rack travel mm : 12.20
Tolerance mm : + 0.10

Rated speed rpm : 600
rack travel mm : 10.75
Tolerance mm : + 0.10

ANEROID/ALTITUDE
COMPENSATOR TEST

SETTING

Rated speed rpm : 1050
Pressure hPa : 1600
rack travel mm : 12.65
Tolerance mm : + 0.05

MEASUREMENT

Pressure hPa : -
Rated speed rpm : 1050
rack travel mm : 8.35
Tolerance mm : + 0.10

Rated speed rpm : 1050

Pressure hPa : 1050
rack travel mm : 11.80
Tolerance mm : + 0.05

Pressure hPa : 700
rack travel mm : 9.40
Tolerance mm : + 0.10

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1600

M21

Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 276.0
cm³/1000 strokes : + 3.0
Check tolerance
cm³/1000S. : + 6.0

Aneroid pressure
hPa : 1600
Rated speed rpm : 800
Del. quantity
cm³/1000 strokes : 299.0
cm³/1000 strokes : + 3.0
Check tolerance
cm³/1000S. : + 6.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 209.0
cm³/1000 strokes : + 1.0
Check tolerance
cm³/1000S. : + 4.0
Spreed
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

BREAKAWAY

Rack travel in mm : 11.65
Rated speed rpm : 1120
Tolerance 1/min : + 5

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 9.50
Tolerance mm : + 0.20
Del. quantity
cm³/1000 strokes : 150.0
cm³/1000 strokes : + 10.0
Check tolerance
cm³/1000S. : + 14.0

LOW IDLE

Rated speed rpm : 350
Del. quantity
cm³/1000 strokes : 15.0
cm³/1000 strokes : + 3.0

Check tolerance
cm³/1000s. : ± 6.0
Spreed
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000s. : 10.0

End of test specification sheet



BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 28.11.96
Test oil : ISO 4113

Combination No. : 0 402 648 785

Injection pump
Pump designation : PE8P120A320LS7844
EP type number : 0 412 628 860

Governor
Governor design. : RQV350...1050PA1318
Governor no. : 0 421 814 185

Cust. part No. : 0270746302

Customer-spec. information
Customer : MB-NFZ
Motor : OM442 LA
Power KW : 370.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 2.0
Tolerance bar : ± 0.1

Overflow quantity
min. l/h : 110
Tolerance l/h : ± 10.0

Test nozzle holde
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

M23

Test lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 5.05
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 20.50
Tolerance mm : ± 0.50

Firing order : 8- 7- 2- 6- 3
 : - 5- 4- 1

Phasing : 0-45-90-135-180
 : -225-270-315
Tolerance : ± 0.30
Check
tolerance °NW : ± 0.50

Start of delivery mark

Tolerance : ± 0.10
Check
tolerance °NW : ± 0.75

Barrel no. : 8

BASIC SETTING

Rated speed rpm : 1050

Rack travel in mm : 15.30
Tolerance mm : ± 0.10

<hr/>	
Del. quantity	
cm ³ /1000 strokes :	272.0
<hr/>	
cm ³ /1000 strokes :	+ 1.0
<hr/>	
Check tolerance	
cm ³ /1000S. :	+ 4.0
<hr/>	
Speed	
cm ³ /1000 strokes :	5.0
<hr/>	
Check tolerance	
cm ³ /1000S. :	9.0
<hr/>	
Rated speed rpm :	350
<hr/>	
Rack travel in mm :	5.00
Tolerance mm :	+ 0.10
Del. quantity	
cm ³ /1000 strokes :	19.0
cm ³ /1000 strokes :	+ 3.0
Check tolerance	
cm ³ /1000S. :	+ 6.0
Speed	
cm ³ /1000 strokes :	6.0
Check tolerance	
cm ³ /1000S. :	10.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm :	350
guide sleeve	
travel mm :	1.48
Tolerance mm :	+ 0.20
<hr/>	
Rated speed rpm :	1106
guide sleeve	
travel mm :	8.02
Tolerance mm :	+ 0.15
<hr/>	
Rated speed rpm :	900
guide sleeve	
travel mm :	5.69
Tolerance mm :	+ 0.25
<hr/>	
Rated speed rpm :	580
guide sleeve	
travel mm :	3.62
Tolerance mm :	+ 0.25
<hr/>	
Rated speed rpm :	1204
guide sleeve	
travel mm :	10.00

Tolerance mm :	+ 0.25
Rated speed rpm :	1300
guide sleeve	
travel mm :	11.50
Tolerance mm :	+ 0.50

GUIDE SLEEVE POSITION

Rated speed rpm :	1174
Rack travel in mm :	11.00
Tolerance mm :	+ 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm :	1050
Aneroid pressure	
hPa :	1800
Del. quantity	
cm ³ /1000 strokes :	272.0
cm ³ /1000 strokes :	+ 1.0
Check tolerance	
cm ³ /1000S. :	+ 4.0
Speed	
cm ³ /1000 strokes :	5.0
Check tolerance	
cm ³ /1000S. :	9.0

CONTROL LEVER

control lever	
position degree :	120.0
tolerance degree :	+ 4.0

RATED SPEED

rack travel mm :	14.30
Rated speed rpm :	1095
Tolerance 1/min :	+ 5
<hr/>	
rack travel mm :	4.00
Rated speed rpm :	1195
Tolerance 1/min :	+ 15
<hr/>	
rack travel mm :	0.50
Tolerance mm :	+ 0.50
Rated speed rpm :	1300

LOW IDLE

control lever	
position degree :	70.0

tolerance degree : +- 4.0

Testing:

Rated speed rpm : 350
rack travel mm : 5.00
Tolerance mm : +- 0.10

Rated speed rpm : 250

CRT mm min. : > 7.00

Rated speed rpm : 450

TORQUE CONTROL

Rated speed rpm : 1050
rack travel mm : 15.30
Tolerance mm : +- 0.10

Rated speed rpm : 800
rack travel mm : 15.30
Tolerance mm : +- 0.10

ANEROID/ALTITUDE
COMPENSATOR TEST

MEASUREMENT

Pressure hPa : -
Rated speed rpm : 500

Pressure hPa : 700
rack travel mm : 4.65
Tolerance mm : +- 0.10

Pressure hPa : 180
rack travel mm : 0.20
Tolerance mm : +- 0.05

START CUT-OUT

Rated speed rpm : > 100
Rated speed rpm : < 270

Check
speed 1/min : > 80
Check
speed 1/min : < 290

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1800

M25

Rated speed rpm : 800
Del. quantity
cm³/1000 strokes : 274.0
cm³/1000 strokes : +- 1.5
Check tolerance
cm³/1000S. : +- 4.5

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 130.0
cm³/1000 strokes : +- 1.0
Check tolerance
cm³/1000S. : +- 4.0

BREAKAWAY

Rack travel in mm : 14.30
Rated speed rpm : 1095
Tolerance 1/min : +- 5

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 270.0
cm³/1000 strokes : +- 10.0
Check tolerance
cm³/1000S. : +- 14.0

LOW IDLE

Rated speed rpm : 350
Del. quantity
cm³/1000 strokes : 19.0
cm³/1000 strokes : +- 3.0
Check tolerance
cm³/1000S. : +- 6.0
Speed
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 10.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 04.12.96
Test oil : ISO 4113
Combination No. : 0 402 648 967C
Injection pump
Pump designation : PE8P120A320LS7871
EP type number : 0 412 628 877
Governor
Governor design. : RQV300...1050PA1078
: -1K
Governor no. : 0 421 815 361
Cust. part No. : 9275447

Customer-spec. information
Customer : LIEBHERR
Motor : D 9408 TI-EA3
Power KW : 420.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1
Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0
Overflow valve : 1 417 413 047
Inlet press. bar : 2.0
Tolerance bar : ± 0.1
Test nozzle holder
assembly : 1 688 901 105
Opening pressure
bar : 208.5
Tolerance bar : ± 1.5
Test lines : 1 680 750 075

M26

Outside diameter : 8.0
x inside diameter : 3.0
x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0
Prestroke mm : 3.65
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10
Rack travel in mm : 10.50
Tolerance mm : ± 1.50
Firing order : 1- 8- 7- 2- 6
: - 3- 5- 4
Phasing : 0-45-90-135-180
: -225-270-315
Tolerance : ± 0.30
Check
tolerance °NW : ± 0.50

BASIC SETTING

Rated speed rpm : 1050
Rack travel in mm : 12.65
Tolerance mm : ± 0.05
Del. quantity
cm³/1000 strokes : 295.0
cm³/1000 strokes : ± 1.0
Check tolerance
cm³/1000S. : ± 4.0
Speed
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

Rated speed rpm : 350

Rack travel in mm : 4.55
Tolerance mm : ± 0.10
Del. quantity
cm³/1000 strokes : 15.0
cm³/1000 strokes : ± 3.0
Check tolerance
cm³/1000S. : ± 6.0
Spreed
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 10.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 300
guide sleeve
travel mm : 1.69
Tolerance mm : ± 0.25

Rated speed rpm : 1117
guide sleeve
travel mm : 10.38
Tolerance mm : ± 0.25

Rated speed rpm : 746
guide sleeve
travel mm : 6.20
Tolerance mm : ± 0.25

Rated speed rpm : 353
guide sleeve
travel mm : 2.45
Tolerance mm : ± 0.25

Rated speed rpm : 403
guide sleeve
travel mm : 3.18
Tolerance mm : ± 0.25

Rated speed rpm : 450
guide sleeve
travel mm : 3.66
Tolerance mm : ± 0.25

Rated speed rpm : 1320
guide sleeve
travel mm : 13.50
Tolerance mm : ± 0.50

M27

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1050
Aneroid pressure
hPa : -
Del. quantity
cm³/1000 strokes : 295.0
cm³/1000 strokes : ± 1.0
Check tolerance
cm³/1000S. : ± 4.0
Spreed
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. : 9.0

CONTROL LEVER

control lever
position degree : 120.0
tolerance degree : ± 4.0

RATED SPEED

rack travel mm : 11.65
Rated speed rpm : 1120
Tolerance 1/min : ± 5

rack travel mm : 4.00
Rated speed rpm : 1210
Tolerance 1/min : ± 15

rack travel mm : 0.50
Tolerance mm : ± 0.50
Rated speed rpm : 1255

LOW IDLE

control lever
position degree : 78.0
tolerance degree : ± 4.0

Testing:

Rated speed rpm : 350
rack travel mm : 4.55
Tolerance mm : ± 0.10

Rated speed rpm : 300

Rated speed rpm : 450

TORQUE CONTROL

Rated speed rpm : 1050
rack travel mm : 12.65
Tolerance mm : ± 0.05

Rated speed rpm : 500
rack travel mm : 10.05
Tolerance mm : ± 0.10

Rated speed rpm : 800
rack travel mm : 11.75
Tolerance mm : ± 0.10

Rated speed rpm : 950
rack travel mm : 12.20
Tolerance mm : ± 0.10

Rated speed rpm : 600
rack travel mm : 10.75
Tolerance mm : ± 0.10

ANEROID/ALTITUDE
COMPENSATOR TEST

SETTING

Rated speed rpm : 1050
Pressure hPa : 1600
rack travel mm : 12.65
Tolerance mm : ± 0.05

MEASUREMENT

Pressure hPa : -
Rated speed rpm : 1050
rack travel mm : 8.35
Tolerance mm : ± 0.10

Rated speed rpm : 1050

Pressure hPa : 1050
rack travel mm : 11.80
Tolerance mm : ± 0.05

Pressure hPa : 700
rack travel mm : 9.40
Tolerance mm : ± 0.10

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 276.0

cm³/1000 strokes : ± 3.0
Check tolerance
cm³/1000S. : ± 6.0

Aneroid pressure
hPa : -
Rated speed rpm : 800
Del. quantity
cm³/1000 strokes : 299.0
cm³/1000 strokes : ± 3.0
Check tolerance
cm³/1000S. : ± 6.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 209.0
cm³/1000 strokes : ± 1.0
Check tolerance
cm³/1000S. : ± 4.0
Speed
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

BREAKAWAY

Rack travel in mm : 11.65
Rated speed rpm : 1120
Tolerance 1/min : ± 5

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 9.50
Tolerance mm : ± 0.20
Del. quantity
cm³/1000 strokes : 150.0
cm³/1000 strokes : ± 10.0
Check tolerance
cm³/1000S. : ± 14.0

LOW IDLE

Rated speed rpm : 350
Del. quantity
cm³/1000 strokes : 15.0
cm³/1000 strokes : ± 3.0
Check tolerance
cm³/1000S. : ± 6.0
Speed
cm³/1000 strokes : 6.0

Check tolerance
cm³/1000S. : 10.0

End of test specification sheet



BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 29.11.96
Test oil : ISO 4113

Combination No. : 0 402 698 033

Injection pump
Pump designation : PE8H120/320LS15
EP type number : 0 412 628 004

Governor
Governor design. : RE36
Governor no. : 0 421 890 369

Cust. part No. : 0250745602

Customer-spec. information
Customer : MB-NFZ
Motor : OM 442 LA

TEST BENCH REQUIREMENTS

Inlet line : 3.2 ELAB

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 082

Inlet press. bar : 3.0
Tolerance bar : ± 0.1

Test nozzle holder
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

N02

x inside diameter : 3.0
x length mm : 600

REMARKS

Pump-specific values
in Section (B)
must be observed!

(A) INJECTION PUMP SETTINGS
No basic setting.
Setting of constant delivery
under Section C.

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 7.00
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 0.50

Firing order : 8- 7- 2- 6- 3
 : - 5- 4- 1

Phasing : 0-45-90-135-180
 : -225-270-315
Tolerance : ± 0.50
Check
tolerance *NW : ± 0.75

Start of delivery mark

Tolerance : ± 0.50
Check
tolerance *NW : ± 0.75

Barrel no. : 8

(B) POSITIONER TESTING

Warm-up time: 3 minutes at
n=600 min⁻¹, Uact = 2.5 V

TESTING & SETTING RACK TRAVEL SENSOR
POSITION

Engine speed min⁻¹: 0

Setting point
(P, R and H pump)

Uact V : 3.100
CRT mm : 13.00
Tolerance mm : +/- 0.05
Check
tolerance mm : +/- 0.10

Check value
(P, R and H pump)

Uact V : 1.700
CRT mm : 6.15
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.30

Setting point
(M pump)

Uact V : 3.100
CRT mm : 12.50
Tolerance mm : +/- 0.05
Check
tolerance mm : +/- 0.10

Check value
(M pump)

Uact V : 1.700
CRT mm : 5.50
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.30

Stop position

Uact V : Value with
deenergised adjusting magnet
and control rod in
stop position.

CRT mm : 0.75
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.35

ENGINE-SPEED SENSOR
(All P and R pumps not
H and M pumps)

Test with control rod
in stop position

Engine speed min⁻¹: 60
Amplitude V : 1.4
Tolerance V : +/- 0.6
Check
tolerance V : +/- 1.20

Engine speed min⁻¹: 600
Difference
Amplitude to
Amplitude V : max.1.4

(C) INJECTION PUMP WITH POSITIONER

TEST POINT V1

Rated speed rpm : 750
Uact V : 2.800
Prestroke solenoid
Stroke mm : 7.40
Del. quantity
cm³/1000 strokes : 342.0
cm³/1000 strokes : +/- 2.0
Check tolerance
cm³/1000s. : +/- 6.0
Spreed
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000s. : 9.0

FUEL DELIVERY CHARACTERISTICS

Rated speed rpm : 950
Uact V : 2.900
Prestroke solenoid
Stroke mm : 8.00
Del. quantity
cm³/1000 strokes : 329.0
cm³/1000 strokes : +/- 3.0
Check tolerance
cm³/1000s. : +/- 6.0

Rated speed rpm : 550
Uact V : 2.700
Prestroke solenoid
Stroke mm : 9.50
Del. quantity
cm³/1000 strokes : 349.0
cm³/1000 strokes : +/- 3.0

Check tolerance
cm³/1000S. : +- 6.0
Rated speed rpm : 630
Uact V : 2.000
Prestroke solenoid
Stroke mm : 5.30
Del. quantity
cm³/1000 strokes : 203.0
cm³/1000 strokes : +- 2.5
Check tolerance
cm³/1000S. : +- 5.0

TEST POINT L1

Rated speed rpm : 300
Uact V : 1.500
Tolerance Volt : +- 0.060
Check tolerance
Volt : +- 0.060
Prestroke solenoid
Stroke mm : 8.00
Del. quantity
cm³/1000 strokes : 31.0
cm³/1000 strokes : +- 3.0
Spreed
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
Uact V : 1.900
Prestroke solenoid
Stroke mm : 10.00
Del. quantity
cm³/1000 strokes : 108.0
cm³/1000 strokes : +- 10.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 03.12.96
Test oil : ISO 4113

Combination No. : 0 402 746 601

Injection pump
Pump designation : PES6P120A72ORS7389
EP type number : 0 412 726 944

Governor
Governor design. : RQ275/1050PA1021-4
Governor no. : 0 421 801 795

Cust. part No. :

Customer-spec. information
Customer : IVECO-FRANCE
Motor : 8460.41E.711

TEST BENCH REQUIREMENTS

Inlet line : 4.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 076

Inlet press. bar : 2.5
Tolerance bar : ± 0.1

Overflow quantity
min. l/h : 145
Tolerance l/h : ± 10.0

Test nozzle holde
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

N05

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 5.15
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.30
Check
tolerance °NW : ± 0.75

Start of delivery mark

Check
tolerance °NW : ± 0.40

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1050

Rack travel in mm : 10.95
Tolerance mm : ± 0.05

Del. quantity
 cm³/1000 strokes : 166.0

 cm³/1000 strokes : ± 1.0

 Check tolerance
 cm³/1000S. : ± 4.0

 Spreed
 cm³/1000 strokes : 5.0

 Check tolerance
 cm³/1000S. : 9.0
 Rated speed rpm : 275

Rack travel in mm : 4.60
 Tolerance mm : ± 0.10
 Del. quantity
 cm³/1000 strokes : 23.0
 cm³/1000 strokes : ± 3.0
 Check tolerance
 cm³/1000S. : ± 6.0
 Spreed
 cm³/1000 strokes : 8.0
 Check tolerance
 cm³/1000S. : 12.0

(B) SETTING OF INJECTION PUMP
 WITH GOVERNOR

GUIDE SLEEVE POSITION

Rated speed rpm : 600
 Rack travel in mm : 20.00
 Tolerance mm : ± 0.80

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1050
 Aneroid pressure
 hPa : 900
 Del. quantity
 cm³/1000 strokes : 166.0
 cm³/1000 strokes : ± 1.0
 Check tolerance
 cm³/1000S. : ± 4.0
 Spreed
 cm³/1000 strokes : 5.0
 Check tolerance
 cm³/1000S. : 9.0

RATED SPEED

N06

rack travel mm : 9.90
 Rated speed rpm : 1103
 Tolerance 1/min : ± 8
 rack travel mm : 4.00
 Rated speed rpm : 1165
 Tolerance 1/min : ± 15
 rack travel mm : 0.50
 Tolerance mm : ± 0.50
 Rated speed rpm : 1350

LOW IDLE

control lever
 position degree : 73.0
 tolerance degree : ± 4.0

Testing:

Rated speed rpm : 275
 rack travel mm : 4.60
 Tolerance mm : ± 0.10

rack travel mm : 2.00
 Rated speed rpm : 356
 Tolerance 1/min : ± 20

Rated speed rpm : 175

CRT mm min. : > 6.10

TORQUE CONTROL

Rated speed rpm : 1050
 rack travel mm : 10.95
 Tolerance mm : ± 0.05

Rated speed rpm : 600
 rack travel mm : 11.00
 Tolerance mm : ± 0.10

ANEROID/ALTITUDE
 COMPENSATOR TEST

SETTING

Rated speed rpm : 600
 Pressure hPa : 900
 rack travel mm : 10.95
 Tolerance mm : ± 0.05

MEASUREMENT

Pressure hPa : -
Rated speed rpm : 600
rack travel mm : 9.00
Tolerance mm : +- 0.10

Rated speed rpm : 600

Pressure hPa : 220
rack travel mm : 9.30
Tolerance mm : +- 0.20

Pressure hPa : 350
rack travel mm : 10.45
Tolerance mm : +- 0.05

START CUT-OUT

Rated speed rpm : > 100
Rated speed rpm : < 195

Check speed 1/min : > 80
Check speed 1/min : < 215

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure hPa : 900
Rated speed rpm : 600
Del. quantity cm3/1000 strokes : 174.5
cm3/1000 strokes : +- 3.0
Check tolerance cm3/1000S. : +- 6.0

Aneroid pressure hPa : -
Rated speed rpm : 600
Del. quantity cm3/1000 strokes : 119.0
cm3/1000 strokes : +- 1.0
Check tolerance cm3/1000S. : +- 4.0

BREAKAWAY

Rack travel in mm : 9.90
Rated speed rpm : 1103
Tolerance 1/min : +- 8

STARTING FUEL DELIVERY

NO7

Rated speed rpm : 100
Del. quantity cm3/1000 strokes : 170.0
cm3/1000 strokes : +- 15.0
Check tolerance cm3/1000S. : +- 19.0

LOW IDLE

Rated speed rpm : 275
Del. quantity cm3/1000 strokes : 23.0
cm3/1000 strokes : +- 3.0
Check tolerance cm3/1000S. : +- 6.0
Speed cm3/1000 strokes : 8.0
Check tolerance cm3/1000S. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 29.11.96
Test oil : ISO 4113

Combination No. : 0 402 746 883

Injection pump
Pump designation : PES6P110A320RS7198
EP type number : 0 412 716 802

Governor
Governor design. : RQV275...1250PA942K
Governor no. : 0 421 815 234

Cust. part No. : CCEP 5097A

Customer-spec. information

Customer : RENAULT V.I.
Motor : MIDR 06.02.26 L
Power KW : 132.5

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 1.5
Tolerance bar : ± 0.1

Test nozzle holder
assembly : 0 681 343 009

Opening pressure
bar : 173.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

N08

x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 4.65
Tolerance mm : ± 0.50
Check
tolerance mm : ± 0.10

Rack travel in mm : 13.00
Tolerance mm : ± 0.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.30
Check
tolerance °NW : ± 0.50

Start of delivery mark

Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Barrel no. : 1

CRT ZERO POSITION

Rack travel in mm : 14.65
Tolerance mm : ± 0.05

BASIC SETTING

Rated speed rpm : 1250

Del. quantity
cm³/1000 strokes : 158.0

cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : ± 3.5

Spreed
cm³/1000 strokes : 4.0

Check tolerance
cm³/1000S. : 7.5

Rated speed rpm : 275

Del. quantity
cm³/1000 strokes : 19.5

cm³/1000 strokes : ± 2.5

Check tolerance
cm³/1000S. : ± 5.0

Spreed
cm³/1000 strokes : 4.5

Check tolerance
cm³/1000S. : 7.5

**(B) SETTING OF INJECTION PUMP
WITH GOVERNOR**

GUIDE SLEEVE POSITION

Rated speed rpm : 1385

Rack travel in mm : 13.60
Tolerance mm : ± 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1250

Aneroid pressure
hPa : 1000

Del. quantity
cm³/1000 strokes : 158.0

cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : ± 3.5

Spreed
cm³/1000 strokes : 4.0

Check tolerance
cm³/1000S. : 7.5

CONTROL LEVER

control lever
position degree : 114.0
tolerance degree : ± 4.0

RATED SPEED

rack travel mm : -1.00
Rated speed rpm : 1320
Tolerance 1/min : ± 5

rack travel mm : -10.65
Rated speed rpm : 1490
Tolerance 1/min : ± 15

rack travel mm : -14.15
Tolerance mm : ± 0.55
Rated speed rpm : 1600

LOW IDLE

control lever
position degree : 62.0
tolerance degree : ± 4.0

Testing:

Rated speed rpm : 200

CRT mm max. : < -8.90

Rated speed rpm : 415

TORQUE CONTROL

Rated speed rpm : 1250

Rated speed rpm : 750
rack travel mm : -0.80
Tolerance mm : ± 0.10

Rated speed rpm : 750
rack travel mm : -5.60
Tolerance mm : ± 0.10

Rated speed rpm : 750
rack travel mm : -8.00
Tolerance mm : ± 0.10

ANEROID/ALTITUDE
COMPENSATOR TEST

SETTING

Rated speed rpm : 1250
Pressure hPa : 1000

MEASUREMENT

Pressure hPa : -
Rated speed rpm : 1250
rack travel mm : -3.40
Tolerance mm : + 0.20

Rated speed rpm : 1250

Pressure hPa : 220
rack travel mm : -2.60
Tolerance mm : + 0.20

Pressure hPa : 360
rack travel mm : -1.75
Tolerance mm : + 0.05

START CUT-OUT

Rated speed rpm : > 150
Rated speed rpm : < 200

Check
speed 1/min : > 130
Check
speed 1/min : < 220

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1000
Rated speed rpm : 750
Del. quantity
cm³/1000 strokes : 127.0
cm³/1000 strokes : + 2.0
Check tolerance
cm³/1000S. : + 5.0

Aneroid pressure
hPa : -
Rated speed rpm : 750
Del. quantity
cm³/1000 strokes : 62.0
cm³/1000 strokes : + 5.0
Check tolerance
cm³/1000S. : + 8.0
Speed

N10

cm³/1000 strokes : 8.0

Aneroid pressure
hPa : -
Rated speed rpm : 750
Del. quantity
cm³/1000 strokes : 39.0
cm³/1000 strokes : + 5.0
Check tolerance
cm³/1000S. : + 8.0
Speed
cm³/1000 strokes : 8.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 68.0
cm³/1000 strokes : + 1.0
Check tolerance
cm³/1000S. : + 3.5

BREAKAWAY

Rack travel in mm : -1.00
Rated speed rpm : 1320
Tolerance 1/min : + 5

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 100.0
cm³/1000 strokes : + 15.0
Check tolerance
cm³/1000S. : + 19.0

LOW IDLE

Rated speed rpm : 275
Del. quantity
cm³/1000 strokes : 19.5
cm³/1000 strokes : + 2.5
Check tolerance
cm³/1000S. : + 5.0
Speed
cm³/1000 strokes : 4.5
Check tolerance
cm³/1000S. : 7.5

End of test specification sheet



BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 29.11.96
Test oil : ISO 4113

Combination No. : 0 402 746 894

Injection pump
Pump designation : PES6P110A320RS7208
EP type number : 0 412 716 803

Governor
Governor design. : RQV275...1175PA942
: -1K
Governor no. : 0 421 815 244

Cust. part No. : CCEP 5100A

Customer-spec. information
Customer : RENAULT V.I.
Motor : MIDR060226 M
Power KW : 210.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 1.5
Tolerance bar : ± 0.1

Test nozzle holde
assembly : 0 681 343 009

Opening pressure
bar : 173.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0
x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 4.15
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 13.50
Tolerance mm : ± 0.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.30
Check
tolerance °NW : ± 0.50

Start of delivery mark
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Barrel no. : 1

CRT ZERO POSITION

Rack travel in mm : 14.05
Tolerance mm : ± 0.05

BASIC SETTING

Rated speed rpm : 1175

Del. quantity
cm³/1000 strokes : 171.0

cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : ± 3.5

Spreed
cm³/1000 strokes : 4.0

Check tolerance
cm³/1000S. : 7.5

Rated speed rpm : 275

Rack travel in mm : -8.80
Tolerance mm : ± 0.20

Del. quantity
cm³/1000 strokes : 21.0
cm³/1000 strokes : ± 2.5

Check tolerance
cm³/1000S. : ± 5.0

Spreed
cm³/1000 strokes : 4.5

Check tolerance
cm³/1000S. : 7.5

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 275
guide sleeve
travel mm : 1.00
Tolerance mm : ± 0.25

Rated speed rpm : 1256
guide sleeve
travel mm : 9.17
Tolerance mm : ± 0.25

Rated speed rpm : 888
guide sleeve
travel mm : 6.57
Tolerance mm : ± 0.25

Rated speed rpm : 390
guide sleeve
travel mm : 2.39

Tolerance mm : ± 0.25

Rated speed rpm : 440
guide sleeve
travel mm : 3.01
Tolerance mm : ± 0.25

Rated speed rpm : 550
guide sleeve
travel mm : 3.92
Tolerance mm : ± 0.25

Rated speed rpm : 1650
guide sleeve
travel mm : 13.50
Tolerance mm : ± 0.50

GUIDE SLEEVE POSITION

Rated speed rpm : 1400

Rack travel in mm : 13.00
Tolerance mm : ± 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1175
Aneroid pressure
hPa : 1000

Del. quantity
cm³/1000 strokes : 171.0
cm³/1000 strokes : ± 1.0
Check tolerance
cm³/1000S. : ± 3.5

Spreed
cm³/1000 strokes : 4.0
Check tolerance
cm³/1000S. : 7.5

CONTROL LEVER

control lever
position degree : 114.0
tolerance degree : ± 4.0

RATED SPEED

rack travel mm : -1.00
Rated speed rpm : 1245
Tolerance 1/min : ± 5

rack travel mm : -10.05
Rated speed rpm : 1430
Tolerance 1/min : ± 15

rack travel mm : -13.55

Tolerance mm : ± 0.55
Rated speed rpm : 1600

LOW IDLE

control lever
position degree : 60.0
tolerance degree : ± 4.0

Testing:

Rated speed rpm : 275
rack travel mm : -8.80
Tolerance mm : ± 0.20

Rated speed rpm : 200

CRT mm max. : < -8.20

Rated speed rpm : 415

TORQUE CONTROL

Rated speed rpm : 1175

Rated speed rpm : 700
rack travel mm : -0.70
Tolerance mm : ± 0.10

Rated speed rpm : 700
rack travel mm : -6.05
Tolerance mm : ± 0.10

Rated speed rpm : 800
rack travel mm : -0.35
Tolerance mm : ± 0.15

ANEROID/ALTITUDE
COMPENSATOR TEST

SETTING

Rated speed rpm : 1175
Pressure hPa : 1000

MEASUREMENT

Pressure hPa : -
Rated speed rpm : 1175
rack travel mm : -3.30
Tolerance mm : ± 0.20

Rated speed rpm : 1175

Pressure hPa : 240
rack travel mm : -2.70
Tolerance mm : ± 0.20

Pressure hPa : 520
rack travel mm : -1.45
Tolerance mm : ± 0.05

START CUT-OUT

Rated speed rpm : > 150
Rated speed rpm : < 200

Check
speed 1/min : > 130
Check
speed 1/min : < 220

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1000
Rated speed rpm : 700
Del. quantity
cm³/1000 strokes : 151.0
cm³/1000 strokes : ± 3.0
Check tolerance
cm³/1000S. : ± 6.0

Aneroid pressure
hPa : -
Rated speed rpm : 700
Del. quantity
cm³/1000 strokes : 55.0
cm³/1000 strokes : ± 5.0
Check tolerance
cm³/1000S. : ± 8.0
Speed
cm³/1000 strokes : 8.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 75.0
cm³/1000 strokes : ± 1.0
Check tolerance
cm³/1000S. : ± 3.5

BREAKAWAY

Rack travel in mm : -1.00
Rated speed rpm : 1245
Tolerance 1/min : ± 5

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 105.0
cm³/1000 strokes : ± 15.0
Check tolerance
cm³/1000S. : ± 19.0

LOW IDLE

Rated speed rpm : 275
Del. quantity
cm³/1000 strokes : 21.0
cm³/1000 strokes : ± 2.5
Check tolerance
cm³/1000S. : ± 5.0
Speed
cm³/1000 strokes : 4.5
Check tolerance
cm³/1000S. : 7.5

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 30.08.95
Test oil : ISO 4113

Combination No. : 0 402 795 203

Injection pump
Pump designation : PES5H120/720/3LS1004
EP type number : 0 412 725 203

Governor
Governor design. : RE33
Governor no. : 0 421 890 364

Cust. part No. : 51.111103-7476

Customer-spec. information

Customer : MAN
Motor : D 2865 LF 09
Power KW : 250.0

TEST BENCH REQUIREMENTS

Inlet line : 4(EHAB)

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 073

Inlet press. bar : 3.0
Tolerance bar : ± 0.1

Test nozzle holde
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

N16

x inside diameter : 3.0
x length mm : 600

REMARKS

Pump-specific values
in Section (B)
must be observed!

(A) INJECTION PUMP SETTINGS
No basic setting.
Setting of constant delivery
under Section C.

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 7.65
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 0.50

Prestroke mm : 10.00
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 0.50

Firing order : 1- 3- 5- 4- 2

Phasing : 0-72-144-216-288

Start of delivery blocking

Tolerance : ± 0.10

Barrel no. : 5

(B) POSITIONER TESTING

Warm-up time: 3 minutes at
n=600 min⁻¹, Uact = 2.5 V

TESTING & SETTING RACK TRAVEL SENSOR
POSITION

Engine speed min⁻¹: 0

Setting point
(P, R and H pump)

Uact V : 3.100
CRT mm : 13.00
Tolerance mm : +/- 0.05
Check
tolerance mm : +/- 0.10

Check value
(P, R and H pump)

Uact V : 1.700
CRT mm : 6.15
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.30

Setting point
(M pump)

Uact V : 3.100
CRT mm : 12.50
Tolerance mm : +/- 0.05
Check
tolerance mm : +/- 0.10

Check value
(M pump)

Uact V : 1.700
CRT mm : 5.50
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.30

Stop position

Uact V : Value with
deenergised adjusting magnet
and control rod in
stop position.

CRT mm : 0.75
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.35

ENGINE-SPEED SENSOR
(All P and R pumps not
H and M pumps)

Test with control rod
in stop position

Engine speed min⁻¹: 60
Amplitude V : 1.4
Tolerance V : +/- 0.6
Check
tolerance V : +/- 1.20

Engine speed min⁻¹: 600
Difference
Amplitude to
Amplitude V : max.1.4

(C) INJECTION PUMP WITH POSITIONER

TEST POINT V1

Rated speed rpm : 750
Uact V : 3.350
Prestroke solenoid
Stroke mm : 10.00
Del. quantity
cm³/1000 strokes : 332.0
cm³/1000 strokes : +/- 1.0
Check tolerance
cm³/1000S. : +/- 4.0
Spreed
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. : 9.0

FUEL DELIVERY CHARACTERISTICS

Rated speed rpm : 750
Uact V : 1.450
Prestroke solenoid
Stroke mm : 10.00
Del. quantity
cm³/1000 strokes : 74.0
cm³/1000 strokes : +/- 4.0
Check tolerance
cm³/1000S. : +/- 8.0
Spreed
cm³/1000 strokes : 4.0
Check tolerance
cm³/1000S. : 8.0
Rated speed rpm : 1000
Uact V : 3.290
Prestroke solenoid
Stroke mm : 8.00

Del. quantity
cm³/1000 strokes : 312.0
cm³/1000 strokes : + 4.0
Check tolerance
cm³/1000S. : + 8.0

Rated speed rpm : 500
Uact V : 2.900
Prestroke solenoid
Stroke mm : 9.20
Del. quantity
cm³/1000 strokes : 306.0
cm³/1000 strokes : + 5.0
Check tolerance
cm³/1000S. : + 9.0

Rated speed rpm : 500
Uact V : 2.100
Prestroke solenoid
Stroke mm : 6.20
Del. quantity
cm³/1000 strokes : 175.0
cm³/1000 strokes : + 4.0
Check tolerance
cm³/1000S. : + 8.0

TEST POINT L1

Rated speed rpm : 300
Uact V : 1.500
Tolerance Volt : + 0.060
Check tolerance
Volt : + 0.080
Prestroke solenoid
Stroke mm : 7.20
Del. quantity
cm³/1000 strokes : 30.0
cm³/1000 strokes : + 3.0
Speed
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
Uact V : 2.450
Prestroke solenoid
Stroke mm : 7.00
Del. quantity
cm³/1000 strokes : 182.0
cm³/1000 strokes : + 10.0
Check tolerance
cm³/1000S. : + 14.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 30.08.95
Test oil : ISO 4113

Combination No. : 0 402 796 202

Injection pump
Pump designation : PES6H120/720/3LS1005
EP type number : 0 412 726 202

Governor
Governor design. : RE33
Governor no. : 0 421 890 364

Cust. part No. : 51.111103-7477

Customer-spec. information
Customer : MAN
Motor : D 2866 LF 16
Power KW : 294.0

TEST BENCH REQUIREMENTS

Inlet line : 4(EHAB)

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 073

Inlet press. bar : 3.0
Tolerance bar : ± 0.1

Test nozzle holder
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 600

REMARKS

Pump-specific values
in Section (B)
must be observed!

(A) INJECTION PUMP SETTINGS
No basic setting.
Setting of constant delivery
under Section C.

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 7.65
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 0.50

Prestroke mm : 10.00
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 0.50

Firing order : 6- 2- 4- 1- 5-
: 3

Phasing : 0-60-120-180-240
: -300

Start of delivery blocking
Tolerance : ± 0.10

Barrel no. : 6

(B) POSITIONER TESTING

Warm-up time: 3 minutes at
n=600 min-1, Uact = 2.5 V

TESTING & SETTING RACK TRAVEL SENSOR
POSITION

Engine speed min-1: 0

Setting point
(P, R and H pump)

Uact V : 3.100
CRT mm : 13.00
Tolerance mm : +/- 0.05
Check
tolerance mm : +/- 0.10

Check value
(P, R and H pump)

Uact V : 1.700
CRT mm : 6.15
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.30

Setting point
(M pump)

Uact V : 3.100
CRT mm : 12.50
Tolerance mm : +/- 0.05
Check
tolerance mm : +/- 0.10

Check value
(M pump)

Uact V : 1.700
CRT mm : 5.50
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.30

Stop position

Uact V : Value with
deenergised adjusting magnet
and control rod in
stop position.

CRT mm : 0.75
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.35

ENGINE-SPEED SENSOR
(ALL P and R pumps not
H and M pumps)

Test with control rod
in stop position

Engine speed min-1: 60
Amplitude V : 1.4
Tolerance V : +/- 0.6
Check
tolerance V : +/- 1.20

Engine speed min-1: 600
Difference
Amplitude to
Amplitude V : max.1.4

(C) INJECTION PUMP WITH POSITIONER

TEST POINT V1

Rated speed rpm : 750
Uact V : 3.350
Prestroke solenoid
Stroke mm : 10.00
Del. quantity
cm³/1000 strokes : 332.0
cm³/1000 strokes : +/- 1.0
Check tolerance
cm³/1000S. : +/- 4.0
Spreed
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. : 9.0

FUEL DELIVERY CHARACTERISTICS

Rated speed rpm : 750
Uact V : 1.450
Prestroke solenoid
Stroke mm : 10.00
Del. quantity
cm³/1000 strokes : 74.0
cm³/1000 strokes : +/- 4.0
Check tolerance
cm³/1000S. : +/- 8.0
Spreed
cm³/1000 strokes : 4.0
Check tolerance
cm³/1000S. : 8.0

Rated speed rpm : 1000
Uact V : 3.290
Prestroke solenoid
Stroke mm : 8.00

Del. quantity
cm³/1000 strokes : 312.0
cm³/1000 strokes : ± 4.0
Check tolerance
cm³/1000S. : ± 8.0

Rated speed rpm : 500
Uact V : 2.900
Prestroke solenoid
Stroke mm : 9.20
Del. quantity
cm³/1000 strokes : 306.0
cm³/1000 strokes : ± 5.0
Check tolerance
cm³/1000S. : ± 9.0

Rated speed rpm : 500
Uact V : 2.100
Prestroke solenoid
Stroke mm : 6.20
Del. quantity
cm³/1000 strokes : 175.0
cm³/1000 strokes : ± 4.0
Check tolerance
cm³/1000S. : ± 8.0

TEST POINT L1

Rated speed rpm : 300
Uact V : 1.500
Tolerance Volt : ± 0.060
Check tolerance
Volt : ± 0.080
Prestroke solenoid
Stroke mm : 7.20
Del. quantity
cm³/1000 strokes : 30.0
cm³/1000 strokes : ± 3.0
Spreed
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
Uact V : 2.450
Prestroke solenoid
Stroke mm : 7.00
Del. quantity
cm³/1000 strokes : 182.0
cm³/1000 strokes : ± 10.0
Check tolerance
cm³/1000S. : ± 14.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 01.12.95
Test oil : ISO 4113
Combination No. : 0 402 796 203

Injection pump
Pump designation : PES6H120/720/3LS1006
EP type number : 0 412 726 203

Governor
Governor design. : RE33
Governor no. : 0 421 890 365

Cust. part No. : 51.111103-7479

Customer-spec. information

Customer : MAN
Motor : D 2866 LUH 21
Power KW : 257.0

TEST BENCH REQUIREMENTS

Inlet line : 4(EHAB)

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 073

Inlet press. bar : 3.0
Tolerance bar : ± 0.1

Test nozzle holde
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test Lines : 1 680 750 089

Outside diameter : 8.0

N22

x inside diameter : 3.0
x length mm : 600

REMARKS

Pump-specific values
in Section (B)
must be observed!

(A) INJECTION PUMP SETTINGS
No basic setting.
Setting of constant delivery
under Section C.

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 10.00
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 0.50

Firing order : 6- 2- 4- 1- 5-
: 3

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery blocking

Barrel no. : 6

(B) POSITIONER TESTING
Warm-up time: 3 minutes at
n=600 min⁻¹, Uact = 2.5 V

TESTING & SETTING RACK TRAVEL SENSOR
POSITION

Engine speed min-1: 0

Setting point
(P, R and H pump)

Uact V : 3.100
CRT mm : 13.00
Tolerance mm : +/- 0.05
Check
tolerance mm : +/- 0.10

Check value
(P, R and H pump)

Uact V : 1.700
CRT mm : 6.15
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.30

Setting point
(M pump)

Uact V : 3.100
CRT mm : 12.50
Tolerance mm : +/- 0.05
Check
tolerance mm : +/- 0.10

Check value
(M pump)

Uact V : 1.700
CRT mm : 5.50
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.30

Stop position

Uact V : Value with
deenergised adjusting magnet
and control rod in
stop position.

CRT mm : 0.75
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.35

ENGINE-SPEED SENSOR
(All P and R pumps not
H and M pumps)

Test with control rod
in stop position

Engine speed min-1: 60

Amplitude V : 1.4
Tolerance V : +/- 0.6
Check
tolerance V : +/- 1.20

Engine speed min-1: 600
Difference
Amplitude to
Amplitude V : max.1.4

(C) INJECTION PUMP WITH POSITIONER

TEST POINT V1

Rated speed rpm : 750
Uact V : 3.350
Prestroke solenoid
Stroke mm : 10.00
Del. quantity
cm³/1000 strokes : 332.0
cm³/1000 strokes : + 1.0
Check tolerance
cm³/1000S. : + 4.0
Spreed
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. : 9.0

FUEL DELIVERY CHARACTERISTICS

Rated speed rpm : 750
Uact V : 1.450
Prestroke solenoid
Stroke mm : 10.00
Del. quantity
cm³/1000 strokes : 74.0
cm³/1000 strokes : + 4.0
Check tolerance
cm³/1000S. : + 8.0
Spreed
cm³/1000 strokes : 4.0
Check tolerance
cm³/1000S. : 8.0

Rated speed rpm : 1000
Uact V : 3.290
Prestroke solenoid
Stroke mm : 8.00
Del. quantity
cm³/1000 strokes : 317.0
cm³/1000 strokes : + 4.0
Check tolerance
cm³/1000S. : + 8.0

Rated speed rpm : 500
Uact V : 2.900
Prestroke solenoid
Stroke mm : 9.20

Del. quantity
cm³/1000 strokes : 307.0
cm³/1000 strokes : + 5.0
Check tolerance
cm³/1000S. : + 9.0

Rated speed rpm : 500
Uact V : 2.100
Prestroke solenoid
Stroke mm : 6.20
Del. quantity
cm³/1000 strokes : 175.0
cm³/1000 strokes : + 4.0
Check tolerance
cm³/1000S. : + 8.0

TEST POINT L1

Rated speed rpm : 300
Uact V : 1.500
Tolerance Volt : + 0.060
Check tolerance
Volt : + 0.080
Prestroke solenoid
Stroke mm : 7.20
Del. quantity
cm³/1000 strokes : 36.0
cm³/1000 strokes : + 3.0
Speed
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
Uact V : 2.450
Prestroke solenoid
Stroke mm : 7.00
Del. quantity
cm³/1000 strokes : 190.0
cm³/1000 strokes : + 10.0
Check tolerance
cm³/1000S. : + 14.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 02.12.96
Test oil : ISO 4113
Combination No. : 0 403 246 048
Injection pump
Pump designation : PES6MW100/720RS1522
EP type number : 0 413 206 023
Governor
Governor design. : RQV300...1300MW148
: -5
Governor no. : 0 420 083 326
Cust. part No. : 0250744902

Customer-spec. information

Customer : MB-NFZ
Motor : OM366LA
Power KW : 155.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1
Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0
Overflow valve : 1 419 992 198
Inlet press. bar : 1.5
Test nozzle holder
assembly : 1 688 901 101
Opening pressure
bar : 208.5
Tolerance bar : ± 1.5
Test lines : 1 680 750 089
Outside diameter : 8.0

N25

x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 31.0
Tolerance bar : ± 1.0
Prestroke mm : 4.55
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10
Rack travel in mm : 20.00
Tolerance mm : ± 1.00
Firing order : 1- 5- 3- 6- 2-
: 4
Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

BASIC SETTING

Rated speed rpm : 1300
Rack travel in mm : 13.30
Tolerance mm : ± 0.05
Del. quantity
cm3/1000 strokes : 118.0
cm3/1000 strokes : ± 1.0
Check tolerance
cm3/1000S. : ± 3.0
Speed
cm3/1000 strokes : 4.5

Check tolerance
 cm³/1000S. : 7.0
 Rated speed rpm : 300
 Rack travel in mm : 4.20
 Tolerance mm : ± 0.10
 Del. quantity
 cm³/1000 strokes : 12.0
 cm³/1000 strokes : ± 2.0
 Check tolerance
 cm³/1000S. : ± 4.5
 Spreed
 cm³/1000 strokes : 2.0
 Check tolerance
 cm³/1000S. : 4.0

(B) SETTING OF INJECTION PUMP
 WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 300
 guide sleeve
 travel mm : 0.92
 Tolerance mm : ± 0.25
 Rated speed rpm : 1355
 guide sleeve
 travel mm : 9.32
 Tolerance mm : ± 0.25
 Rated speed rpm : 1078
 guide sleeve
 travel mm : 7.06
 Tolerance mm : ± 0.25
 Rated speed rpm : 514
 guide sleeve
 travel mm : 2.14
 Tolerance mm : ± 0.25
 Rated speed rpm : 564
 guide sleeve
 travel mm : 2.60
 Tolerance mm : ± 0.25
 Rated speed rpm : 740
 guide sleeve
 travel mm : 3.93
 Tolerance mm : ± 0.25
 Rated speed rpm : 1720
 guide sleeve
 travel mm : 13.50
 Tolerance mm : ± 0.50

GUIDE SLEEVE POSITION

Rated speed rpm : 1500
 Rack travel in mm : 10.00
 Tolerance mm : ± 2.70

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1300
 Aneroid pressure
 hPa : 1200
 Del. quantity
 cm³/1000 strokes : 118.0
 cm³/1000 strokes : ± 1.0
 Check tolerance
 cm³/1000S. : ± 3.0
 Spreed
 cm³/1000 strokes : 4.5
 Check tolerance
 cm³/1000S. : 7.0

CONTROL LEVER

control lever
 position degree : 120.0
 tolerance degree : ± 4.0

RATED SPEED

rack travel mm : 12.30
 Rated speed rpm : 1345
 Tolerance 1/min : ± 5
 rack travel mm : 4.00
 Rated speed rpm : 1485
 Tolerance 1/min : ± 15
 rack travel mm : 0.50
 Tolerance mm : ± 0.50
 Rated speed rpm : 1600

LOW IDLE

control lever
 position degree : 74.0
 tolerance degree : ± 4.0

Testing:

Rated speed rpm : 300
 rack travel mm : 4.20

Tolerance mm : + 0.10
Rated speed rpm : 200
CRT mm min. : > 5.00

TORQUE CONTROL

Rated speed rpm : 1300
rack travel mm : 13.30
Tolerance mm : + 0.05

Rated speed rpm : 750
rack travel mm : 13.30
Tolerance mm : + 0.10

ANEROID/ALTITUDE
COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 1200
rack travel mm : 13.30
Tolerance mm : + 0.10

MEASUREMENT

Pressure hPa : -
Rated speed rpm : 500
Tolerance mm : + 0.05

Rated speed rpm : 500

Pressure hPa : 800
rack travel mm : 4.30
Tolerance mm : + 0.10

Pressure hPa : 300
rack travel mm : 1.20
Tolerance mm : + 0.10

START CUT-OUT

Rated speed rpm : > 100
Rated speed rpm : < 200

Check
speed 1/min : > 80
Check
speed 1/min : < 220

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1200
Rated speed rpm : 750
Del. quantity
cm³/1000 strokes : 114.0
cm³/1000 strokes : + 1.5
Check tolerance
cm³/1000S. : + 4.0
Spreed
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 9.0

Aneroid pressure
hPa : 1200
Rated speed rpm : 1300
Del. quantity
cm³/1000 strokes : 105.0
cm³/1000 strokes : + 1.5
Check tolerance
cm³/1000S. : + 3.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 48.0
cm³/1000 strokes : + 1.0
Check tolerance
cm³/1000S. : + 3.0

BREAKAWAY

Rack travel in mm : 12.30
Rated speed rpm : 1345
Tolerance 1/min : + 5

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 150.0
cm³/1000 strokes : + 5.0
Check tolerance
cm³/1000S. : + 8.0

LOW IDLE

Rated speed rpm : 300
Del. quantity
cm³/1000 strokes : 12.0
cm³/1000 strokes : + 2.0

Check tolerance
cm³/1000S. : ± 4.5
Speed
cm³/1000 strokes : 2.0
Check tolerance
cm³/1000S. : 4.0

End of test specification sheet